Elytra, *Tokyo*, **27** (2): 327–334, November 13, 1999

Two New *Paramimistena* (Coleoptera, Cerambycidae) from Western Kalimantan

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Abstract Two new species of the genus *Paramimistena* are described from western Kalimantan of Indonesia under the names *P. immaculicollis* and *P. brevis* spp. nov. This is the first record of the genus from the Indo-Malayan Region. Though the two species have unique shortened body with large prothorax, they no doubt belong to the same lineage as the Laotian species, *P. enterolobii* GRESSITT et RONDON. The two new species were collected by a Malaise trap set at a height of 40 m above the ground in a primary forest.

The genus *Paramimistena* has so far been known from only five species of the Indo-Chinese Region, *viz.*, the type species, *P. polyalthiae* FISHER recorded from Northeast India, and the other four species occurring in northern Indochina. In the course of the field survey in a primary forest on Bukit Soeharto of western Kalimantan, the junior author, H. MAKIHARA collected two specimens of strange *Paramimistena* species by Malaise traps set at a height of 40 m above the ground. They were submitted to T. NIISATO for identification. A closer examination revealed that the specimens in question were new species belonging to the same lineage as *P. enterolobii* GRESSITT et RONDON from Laos. In the following lines, we are going to describe them under the names *P. immaculicollis* and *P. brevis* spp. nov.

The abbreviations used in the descriptions are the same as those explained in the previous paper of the first author (NIISATO, 1998, p. 461).

We wish to thank Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his reading the original manuscript of this paper and useful suggestions to our study.

Paramimistena immaculicollis sp. nov.

(Fig. 1)

A small and rather slender species belonging to the group of *P. enterolobii*, with pronotum subparallel at sides, without pale pubescent band on base, and fairly long antennae.

Colour blackish chestnut brown, rather weakly shiny; head dark chestnut brown, slightly infuscate near antennal cavities and along median line of frons, black in eyes and most parts of mandibles, pale yellowish brown at palpi; antennae yellowish brown; pronotum blackish chestnut brown, infuscate near apex and base; scutellum brownish black; elytra yellowish chestnut brown, infuscate near bases, each with broad slightly oblique pale yellow band on basal 2/5, which almost reaches suture, strongly sinuate on anterior margin, distinctly arcuate on posterior margin; ventral surface largely dark chestnut brown; legs yellowish brown, more yellowish in tarsi.

Male. Head strongly voluminous, as wide as pronotum, moderately constricted at neck, covered with medium-sized reticulations in most parts, sparsely clothed with pale erect hairs, HW/PA 1.32, HW/PW 1.04; frons moderately raised, gently narrowed apicad, with a fine median groove, largely, somewhat irregularly reticulate (5 or 6 reticulations in a transverse line near middle), with anterior margin widely and triangularly produced, FL/FB 1.00; clypeus truncate at anterior margin, CL/CB 0.35; genae 3/10 the depth of lower eye-lobes, obtusely angulate in profile; vertex broadly and weakly concave; eyes with lower lobes distinctly prominent laterad, gently emarginate on inner margin, upper lobes separated from each other by 7/10 the width of occiput. Antennae long and moderately stout, surpassing body at apical third of segment 9, gradually thinner towards apical segments, moderately clothed with erect pale hairs, and with dense pubescence on apical six segments; scape strongly clavate in apical 2/3, segment 2 thickened at apex, 2.5 times as long as basal width; segment 3 slightly longer than segment 4, both strongly thickened at apices; segment 5 the longest and as long as scape, weakly thickened at apex; terminal segment slender, gently arcuate.

Pronotum almost cylindrical, moderately constricted at apex and base, moderately long, widest at apical eighth and basal fourth, PL/PA 2.02, PB/PA 1.02, PL/PW 1.59, PW/EW 0.94, PL/EL 0.67; apex nearly transverse, not bordered, as wide as base; base very narrowly bordered, gently sinuate; sides parallel in front, weakly arcuate to apical eighth, gently emarginate at a level between apical fourth and basal 3/8, rather strongly constricted at basal eighth, then rounded to basal angles; disc rather strongly raised in apical 3/4, though depressed along apical margin and largely so near apical 3/8, weakly raised on large basal collar, provided with irregular-sized reticulations, which are indistinct near the depressed portion including apex and base, very sparsely clothed with erect pale hairs, and rather sparsely with pale pubescence near basal eighth, without conspicuous pubescent band on base. Scutellum small and transverse, convex, emarginate at apex, densely clothed with pale pubescence.

Elytra gently ample posteriad, a little wider at apical third than at humeri, attain-

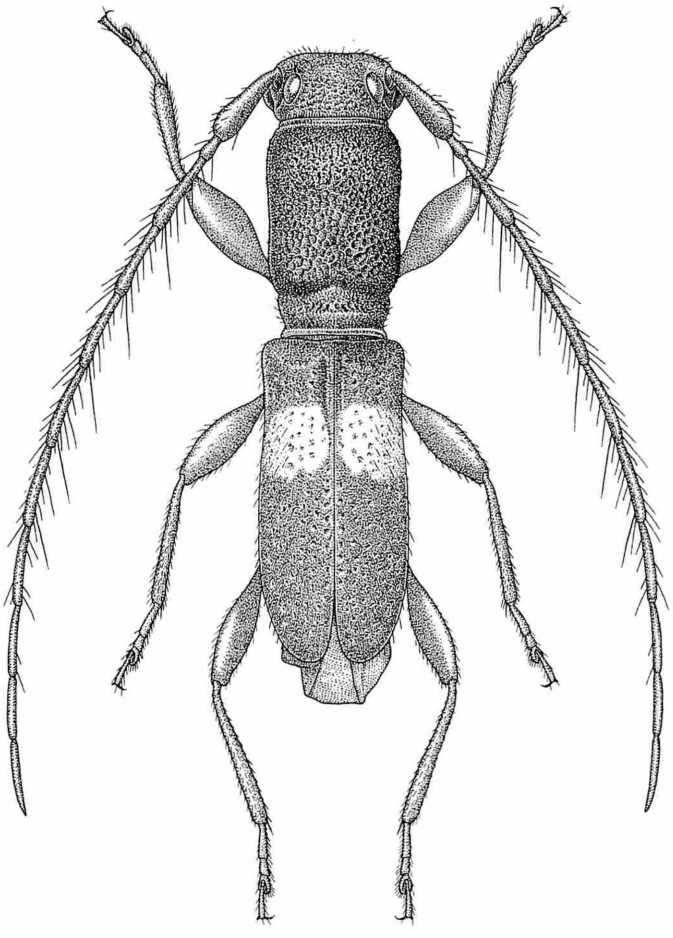

Fig. 1. *Paramimistena immaculicollis* NIISATO et MAKIHARA, sp. nov., male, from Bukit Soeharto of western Kalimantan.

ing to the middle of last tergite, dehiscent a short distance from apices which are completely rounded, very narrowly bordered along both sutural and external margins, EL/EW 2.21; sides with weakly produced humeri, slightly narrowed to basal fourth, then arcuate to apices; disc almost uniformly convex, longitudinally concave near suture behind scutellum, slightly convex near suture of apical sixth, scattered with large though shallow punctures, densely clothed with rather long, semirecumbent pale hairs.

Prosternum rather distinctly declined towards apical 2/7 (strongly arcuately emarginate in profile), largely, rather shallowly reticulate, only transversely furrowed near apical margin, thinly haired; prosternal process very thin, only visible at basal third in external view due to approximate fore coxae. Meso- and metathoraces weakly closely rugose in most part, scattered with a few punctures near middle, sparsely haired in

most parts, though densely with pale pubescence on sides of mesosternum, more sparsely so at basal side of metasternum and at basal third of each metepisternum. Abdomen short in external appearance though weakly reduced, strongly narrowed apicad, moderately convex, almost smooth, sparsely haired; sternite 3 3/5 the length of basal width, slightly arcuate at sides, sternites 4–5 strongly transverse, 1/4 or so the length of each basal width, sternite 6 not so transverse as in the preceding two, 1/3 the length of basal width, anal sternite trapezoidal, a half the basal width, with apical width 3/7 of the basal, gently arcuate at margin.

Legs stout, moderately long; femora with clubs strongly swollen and compressed, with hind pair weakly arcuate near base, somewhat gradually though distinctly clavate in apical 3/5; tibiae rather short and stout, with hind pair gently sinuate; tarsi not so thin, with 1st segment of hind tarsus 1.5 times as long as the following two segments combined.

Body length 3.45 mm.

Type specimen. Holotype ♂, Bukit Soeharto, Kalimantan Timur, Indonesia, (Mt. Nat. 3), 4–II–1999, collected by a Malaise trap (tree 60 m in height/trap location 40 m in height), H. MAKIHARA leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Distribution. Western Kalimantan (Borneo).

Notes. The elytra of *P. immaculicollis* sp. nov., are almost complete in dorsal aspect, and attain to the middle of the anal tergite. These are one of the narrowest and longest elytra among those of the congeners, because the ratio of the length to the humeral width is nearly 2.2. For example, in the shortest elytral type of the genus, they are less than 2.0 times as long as the humeral width. On the other hand, *P. immaculicollis* sp. nov. externally looks to have a shortened body in contrast to such long elytra. The short body of this species seems to have been caused by reduction of the abdominal segments. The visible abdominal segments 2–5 are markedly transverse in this species, and distinctly narrowed towards the apex.

Though unique in facies, *P. immaculicollis* sp. nov. has closer relationship to *P. enterolobii* GRESSITT et RONDON (1970, p. 308, figs. 48 c, d) occurring in Indochina. The two species share such basic characters as subparallel habitus with cylindrical pronotum, strongly clavate antennal scape, long elytra which attain to the anal tergite, and also pale premedian bands on the elytra. This species may be closest to *P. brevis* sp. nov. to be described on later pages not only in the basic structure mentioned above but also in the long antennae, which distinctly extend beyond the abdominal apex.

Only one male specimen of this new species was collected by a Malaise trap set at a height of 40 m above the ground of a tree 60 m in height in a primary forest. It may be difficult to find out this species since it is usually skipping on the crown of trees.

Paramimistena brevis sp. nov.

(Fig. 2)

A small species of broad parallel body form, with broad subbasal pale bands on elytra, belonging to the group of *P. enterolobii* and closely allied to the preceding species *P. immaculicollis* sp. nov.

Colour dark reddish brown to blackish brown, shiny; head dark reddish brown, reddish in mouth parts except for black mandibular margins and yellow palpi, eyes black, antennae reddish brown, slightly darkened towards apical segments; pronotum and scutellum blackish brown; elytra dark reddish brown, with oblique broad bands at a level between basal seventh and basal 3/7, which almost reach both sutural and external margins, moderately arcuate on posterior margins; ventral surface dark reddish brown, with yellowish brown apical two abdominal sternites; legs dark reddish brown,

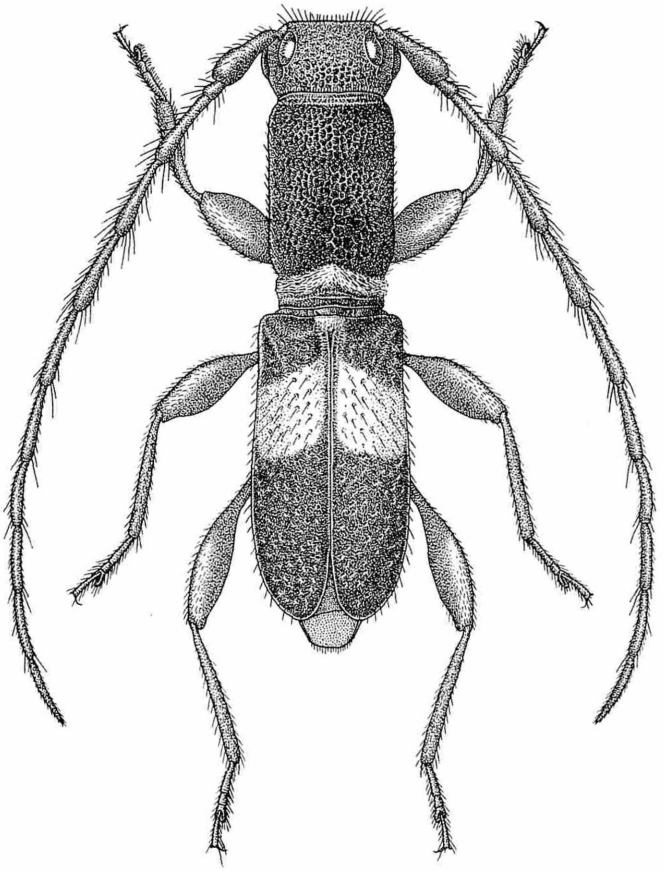

Fig. 2. *Paramimistena brevis* NIISATO et MAKIHARA, sp. nov., male, from Bukit Soeharto of western Kalimantan

slightly yellowish in tarsi.

Head large, and voluminous, with distinctly prominent eyes, reticulate throughout, the reticulations becoming larger near vertex and on frons, smaller on occiput, rather densely clothed with long erect pale hairs, HW/PA 1.37, HW/PW 1.17; frons strongly raised towards the centre, gently dilated apicad, with arcuate sides, gently arcuate on apical margin, provided with a fine median costa, FL/FB 0.55; clypeus strongly narrowed apicad, flattened, almost smooth though weakly punctured near apical margin, with truncate margin, CL/CB 0.48; mandibles moderate in length, broad and stout, moderately arcuate near apices; vertex and occiput gently raised, provided with a few punctures; genae shallow, 1/5 the depth of lower eye lobes, almost rounded at ventral corner; eyes large, coarsely faceted, moderately approximate on dorsum, separated from each other by 2/11 on dorsum and 1/3 on venter of the maximum width of head. Antennae very long and slightly stout, 1.76 times as long as body, densely clothed with reddish and pale erect hairs on basal five segments, particularly densely on scape, and also with minute pubescence on apical eight segments; scape slender and weakly clavate, weakly punctured, 1.27 time as long as segment 3, segment 2 a little less than twice the width, segments 3 and 4 gently thickened at apices, the former slightly longer than the latter, segment 5 1.6 times as long as segment 3, terminal segment slender and gently arcuate.

Pronotum moderately elongate and almost cylindrical, hardly emarginate at sides, gently ample basad, widest at basal 2/7, distinctly narrower than the humeral width of elytra, PL/PA 2.00, PB/PA 1.00, PL/PW 1.66, PW/EW 0.88, PL/EL 0.71; apex gently emarginate, very narrowly bordered, just as wide as base; base narrowly though distinctly bordered, transverse, gently emarginate at middle; sides nearly parallel in front, then arcuately divergent to apical seventh, gently and almost straightly divergent to basal 2/7, then arcuately narrowed to distinct constriction at basal 2/7, moderately arcuate in basal portions; disc moderately raised in apical 5/7, rather strongly uneven above, transversely (though somewhat arcuately) depressed near apical 3/7, longitudinally so at a level between apical 3/7 and just before basal 2/7, weakly declined to apical margin, with basal collar strongly convex at middle and arcuately produced anteriad, provided with medium to large-sized distinct reticulations except near apical margin and on basal collar, the reticulations almost uniform in most parts, becoming larger near base, thinly scattered with long erect pale hairs, and clothed with silvery white recumbent pubescence at sides, and also with dense silvery white pubescent bands on basal collar except for margin. Scutellum large, quadrate, gently arcuate at apex, strongly convex, densely clothed with silvery white pubescence.

Elytra fairly short in external appearance though almost complete, attaining to basal third of last tergite (5 visible), broad and rather distinctly ample posteriad, rather distinctly wider at apical 3/10 than at humeri, dehiscent in apical 2/11, very narrowly bordered throughout, though indistinctly so at apices, EL/EW 2.25; sides roundly angulate at humeri, gently and straightly divergent to basal 2/11, weakly arcuately divergent to apical 3/10, then arcuately narrowed to completely rounded apices; disc moder-

ately convex, almost even above, deeply concave near suture in basal halves, sparsely and irregularly scattered with medium-sized shallow punctures, which bear medium-sized suberect pale hairs.

Prosternum weakly raised, moderately arcuate in profile, provided with large reticulations before coxal cavities, shallowly furrowed near apex, almost glabrous in middle, rather densely clothed with silvery white pubescence at sides; prosternal process very strongly compressed, though visible from above between fore coxae. Meso- and metathoraces almost smooth, densely clothed with silvery white pubescence at sides of mesosternum, mesepisterna, apical third of metepisterna, and sides of metasternum, glabrous in middle of metasternum. Abdomen strongly and arcuately narrowed apicad, 2.11 times as long as the basal width of sternite 3 (1 visible), shagreened, provided with a few punctures on basal sternite, thinly haired, and densely clothed with silvery white pubescence at sides of sternites 3–6; sternite 3 2/3 the length of basal width, arcuately narrowed apicad, sternite 4 2/5 the length of basal width, sternite 5 as long as the preceding though slightly narrower in basal width, sternite 6 9/20 the length of basal width, straightly narrowed apicad, anal sternite arcuately bent latero-ventrad, subquadrate, 2/3 the length of basal width, moderately narrowed apicad, weakly emarginate at apical margin.

Legs moderately long and stout; femora with clubs distinctly swollen particularly in middle pair, weakly compressed, with the hind one gently arcuate near base, gradually clavate in apical 3/5; tibiae almost straight, moderately thickened towards apices; tarsi thin, with 1st segment of hind tarsus short, 1.25 times as long as the following two segments combined.

Body length 4.05 mm.

Type specimen. Holotype ♂, Bukit Soeharto, Kalimantan Timur, Indonesia, (Mt. Nat. 3), 3～9–III–1998, collected by a Malaise trap (tree 60 m in height/trap location 40 m in height), H. MAKIHARA leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Distribution. Western Kalimantan (Borneo).

Notes. Externally, this new species is very closely similar to the preceding one, *P. immaculicollis* sp. nov., in the short subparallel habitus, with large prothorax and the ordinary pale maculation on the elytra. It is distinguished from the latter in broader and shorter body, with fairly stout antennae and legs, and also in possessing pale pubescent maculation on the pronotal base as in most other congeners.

This species is also collected by a Malaise trap in almost the same collecting situation as the preceding species. Only one male was collected during the two-year field survey on Bukit Soeharto.

要　　約

新里達也・槇原　寛：西カリマンタンの *Paramimistena* 属2新種．—— 西カリマンタンの Bukit Soeharto の調査により採集された *Paramimistena* 属の2新種を記載し，それぞれ *P. immaculi-*

collis および *P. brevis* と命名した．両種はインドシナから知られる *P. enterolobii* に近縁で，この種とともに属内で1種群を形成するものと考えられる．なお，本属のカミキリムシは，これまでにはヒマラヤからインドシナ北部にかけての地域から知られていたが，今回のカリマンタンにおける発見は同地域から初めての記録になる．

記載に用いた個体は，原生林の地上40 mに設置したマレーゼトラップにより採集されたものであるが，2年近くに及ぶ継続調査中にそれぞれ1雄個体が得られただけであった．この2種がきわめて個体数の少ないものであることには疑いの余地がないが，熱帯地域における種多様性とは対照的な個体密度の低さをうかがわせる資料としても注目される．

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Elytra, *Tokyo*, **27** (2): 335–352, November 13, 1999

Study of Asian Strongyliini (Coleoptera, Tenebrionidae)

VIII. Ten New Species of the Genus *Strongylium* from East Asia

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Abstract This is the part eight of the study of the Asian Strongyliini and deals with 10 new species of the genus *Strongylium* from East Asia, which are described under the following names: *Strongylium ardoinianum* sp. nov., *S. bhutanicum* sp. nov., *S. yunnanicum* sp. nov., *S. spinitibiale* sp. nov., *S. inspinitibiale* sp. nov., *S. beardae* sp. nov., *S. puncakdinginense* sp. nov., *S. viridistriatum* sp. nov., *S. katsumii* sp. nov. and *S. iridiorsale* sp. nov.

This paper is the eighth part of my study of the Asian Strongyliini and deals with ten new species of the genus *Strongylium* from various areas of East Asia.

The specimens examined are submitted to me for taxonomic study mainly from the collection of the Muséum National d'Histoire Naturelle, Paris, and partly from that of the Natural History Museum, London and the Staatliches Museum für Naturkunde in Stuttgart. Other materials, besides the specimens in my collection, are also submitted to me personally from Messrs. Katsumi AKITA, Hisai City, and Stanislav BEČVÁŘ, Czech Academy of Sciences.

I wish to express my cordial thanks to Dr. Claude GIRARD and Mlle Jeanne CHARBONNEL, Muséum National d'Histoire Naturelle, Paris, Mrs. Jane BEARD and Mr. Martin J. D. BRENDELL, the Natural History Museum, London, Dr. Wolfgang SCHAWALLER, the Staatliches Museum für Naturkunde in Stuttgart, for their invaluable support in the course of the present study. I thank Dr. Dariusz IWAN, Museum and Institute of Zoology, Polish Academy of Sciences, Warsaw, for permitting me to examine the GEBIEN collection preserved in the Museum. Appreciations are due to Mr. Seiji MORITA, Tokyo, for taking photographs inserted in this paper. Finally, my deepest thanks should be expressed to Dr. Shun-Ichi UÉNO, National Science Museum (Nat. Hist.), Tokyo, for his constant guidance of my taxonomic studies.

Depositories of the holotypes to be designated are given in each description.

The abbreviations used herein are as follows: NSMT – National Science Museum (Nat. Hist.), Tokyo; MNHNP – Muséum National d'Histoire Naturelle, Paris; NHML – the Natural History Museum, London; SMNS – Staatliches Museum für Naturkunde in Stuttgart; NMNHP – National Museum (Nat. Hist.), Praha.

Strongylium ardoinianum sp. nov.

(Figs. 1, 11 &12)

Piceous, femora except for apical parts remarkably reddish brown; dorsal surface gently shining with feeble sericeous lustre, ventral surface somewhat alutaceous. Elongate; convex longitudinally.

Head rather wide, weakly micro-shagreened, closely and finely punctate; clypeus somewhat semicircular, rather strongly depressed in basal part, fronto-clypeal border clearly impressed; genae obliquely strongly raised and projected laterad, rather closely, finely punctate, with rounded outer margins; frons somewhat T-shaped though the basal part is biforked, rather steeply inclined forwards, with a distinct longitudinal impression in hind part, each side of which is ridged; vertex closely punctate. Eyes very large, subreniform in dorsal view, approximate with each other, obliquely inlaid into head, strongly convex laterad. Antennae subfiliform, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.92, 0.31, 1.28, 1.13, 0.98, 0.87, 0.84, 0.8, 0.83, 0.81, 0.93.

Pronotum trapezoidal, 1.25 times as wide as long, widest at apical 2/5; apex margined, the margin gently thickened in middle and scattered with minute punctures; base weakly bisinuous, rather boldly margined, the margin bordered from disc by a rather strong impression and very weakly depressed in middle, scattered with microscopic punctures; sides steeply declined to lateral margins, which are entirely bordered from the prosternum by the ridges; front angles rounded, hind angles slightly acute; disc gently convex, weakly micro-shagreened, rather closely and irregularly punctate, with a vague medial impression and also with a pair of impressions slightly behind the middle. Scutellum sublinguiform, slightly elevated, scattered with microscopic punctures in lateral and posterior portions.

Elytra elongated fusiform, 2.54 times as long as wide, 4.86 times the length and 1.54 times the width of pronotum, very sligthly narrowed posteriad in basal 2/3, then rounded to apices; dorsum rather strongly convex longitudinally, highest at basal 1/3; disc punctato-striate, the striae fine and almost entire, 1st and 2nd, and often 3rd and 4th, connected with each other in basal parts, 5th rather strongly impressed near base; intervals convex, micro-shagreened, somewhat transversely micro-aciculate, sparsely scattered with microscopic punctures; humeri swollen; apices rounded.

Male anal sternite elliptically depressed in apical part. Legs slender, without special modification; ratios of the lengths of pro-, meso- and metatarsomeres: 0.67, 0.32, 0.31, 0.37, 1.57; 2.39, 1.1, 0.8, 0.69, 1.68; 2.68, 0.99, 0.74, 1.72.

Male genitalia elongated fusiform, evenly curved in lateral view, 4.7 mm in length and 0.8 mm in width; fused lateral lobes elongated nib-shaped, 1.6 mm in length, with acute apex.

Body length: 22–26 mm.

Holotype: ♂, Plaine des Jarres, VII–1964, Laos, A. BAUDON leg. (MNHNP). Paratypes: 3 exs., same data as for the holotype; 15 exs., Paksong, Sud Laos, 30–III–

1965, J. RONDON leg.; 1 ex., Vientiane, Laos, V–1963, A. BAUDON leg.; 1 ex., Houei Khong, Laos, 17–VI–1965, J. RONDON leg.; 2 exs., Paksong, Sud Laos, 20–III–1965, J. RONDON leg.; 1 ex., Paksé, Sud Laos, 30–IV–1967, J. RONDON leg.; 1 ex., Paksong, Sud Laos, 16–IV–1965, J. RONDON leg.; 1 ex., Paksong, Sud Laos, 30–III–1965, J. RONDON leg.

Notes. This new species closely resembles *S. atricolor* PIC, 1922, from Tonkin, but can be distinguished from the latter by the slenderer legs with reddish femora and the male genitalia very elongated, 4.7 mm in length (3.65 mm in *S. atricolor*). *Strongylium atricolor* PIC should be a member of the species-group of *S. carbonarium*.

Strongylium bhutanicum sp. nov.

(Figs. 2, 13 & 14)

Black, antennae, mouth parts, tarsi, etc., slightly lighter in colour; head, pronotum, pro- and mesosterna, and anterior part of metasternum weakly shining, elytra moderately, feebly sericeously shining, gula, middle and posterior parts of metasternum and abdomen rather strongly so. Elongate, subparallel-sided; rather strongly convex longitudinally.

Head subdecagonal, weakly micro-shagreened, closely punctate; clypeus semicircular, projected and bent in front, fronto-clypeal border widely arcuate, finely sulcate, impressed at each lateral end; genae closely and finely punctate, strongly raised and produced laterad, with rounded outer margins; frons T-shaped, finely and coarsely punctate, steeply inclined forwards, with a somewhat rhombical impression in posterior part between eyes; vertex weakly convex, closely punctate, weakly depressed along posterior margins of eyes. Eyes very large and approximate to each other, broadly and somewhat obliquely inlaid into head, broadly convex laterad. Antennae subfiliform, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.8, 0.25, 1.15, 1.1, 1.0, 0.92, 0.89, 0.83, 0.82, 0.82, 0.87.

Pronotum somewhat short barrel-shaped, 1.23 times as wide as long, roundly produced laterad, widest at the middle; apex very weakly produced, clearly bordered, area between the border and apical margin raised and frequently punctate; base bordered by rather deep groove, area between the border and basal margin raised and rather closely punctate in posterior part; sides steeply inclined, bordered from metasternum by fine ridges, which are invisible from above; front angles rounded, hind angles weakly projected postero-laterad; disc moderately convex though longitudinally, weakly depressed in middle, very weakly micro-shagreened, closely and irregularly punctate, with a longitudinal impunctate area in the middle, and sometimes also with a pair of vague impressions at basal 1/3. Scutellum slightly elongated triangular with weakly produced sides, feebly convex, weakly micro-shagreened, scattered with small punctures in lateral parts.

Elytra subparallel-sided, though the posterior 1/3 is slightly widened, 2.5 times as long as wide, 4.49 times the length and 1.53 times the width of pronotum; dorsum

rather strongly convex longitudinally, highest slightly before the middle; disc rather strongly punctato-striate, the punctures smaller and more closely set in inner portions, becoming larger and more sparsely so in lateral portions, 1st and 2nd striae and often 3rd and 4th connected with each other near base, 5th striae strongly grooved close to base; intervals convex, micro-shagreened, rather transversely micro-aciculate, sparsely scattered with microscopic punctures; humeri slender; apices gently, roundly produced.

Male anal sternite weakly depressed in apical part. Legs slender, without modification; ratios of the lengths of pro-, meso- and metatarsomeres: 0.4, 0.26, 0.23, 0.24, 1.39; 1.8, 0.8, 0.72, 0.63, 1.71; 2.0, 0.78, 0.69, 1.68.

Male genitalia subfusiform, evenly curved in lateral view, 4 mm in length and 0.68 mm in width; fused lateral lobes elongated equilateral triangular in dorsal view, 1.68 mm in length, with acute apex. Compared with the male, the female is bold in body shape.

Body length: 19.5–25.5 mm.

Holotype: ♂, "British Bootang, Maria Basti, L. Durel". Paratypes: 3 exs., same data as for the holotype; 32 exs., Pedong, A. DESGODINS; 6 exs., 1899, 1 ex., 1900, British Bootang, M. BASTI; 1 ex., 1898, 1 ex., 1899, British Bootang, L. DUREL; 10 exs., Pedong, DESGODINS; 1 ex., Environs de Kurseong, R. P. BRETAUDEAU; 3 exs., British Bootan, Padong, L. DUREL 1913; 1 ex., Bhoutan Pedong, R. OBERTHUR, 1897; 2 exs., Phedong, R. P. DESGODINS; 1 ex., Indes, Pedong, CHASSOT, VI–1960; 1 ex., Assam, Margherita, Chasseurs BRETAUDEAU, 1895.

Notes. This new species somewhat resembles *S. opacicolle* FAIRMAIRE, 1891, originally described from China (Mou-pin), but can be distinguished from the latter by the stout body with bolder antennae, punctures on the pronotum comparatively not so close, triangular scutellum, and elytral intervals more smooth. This new species should also be a member of the species-group of *S. carbonarium*.

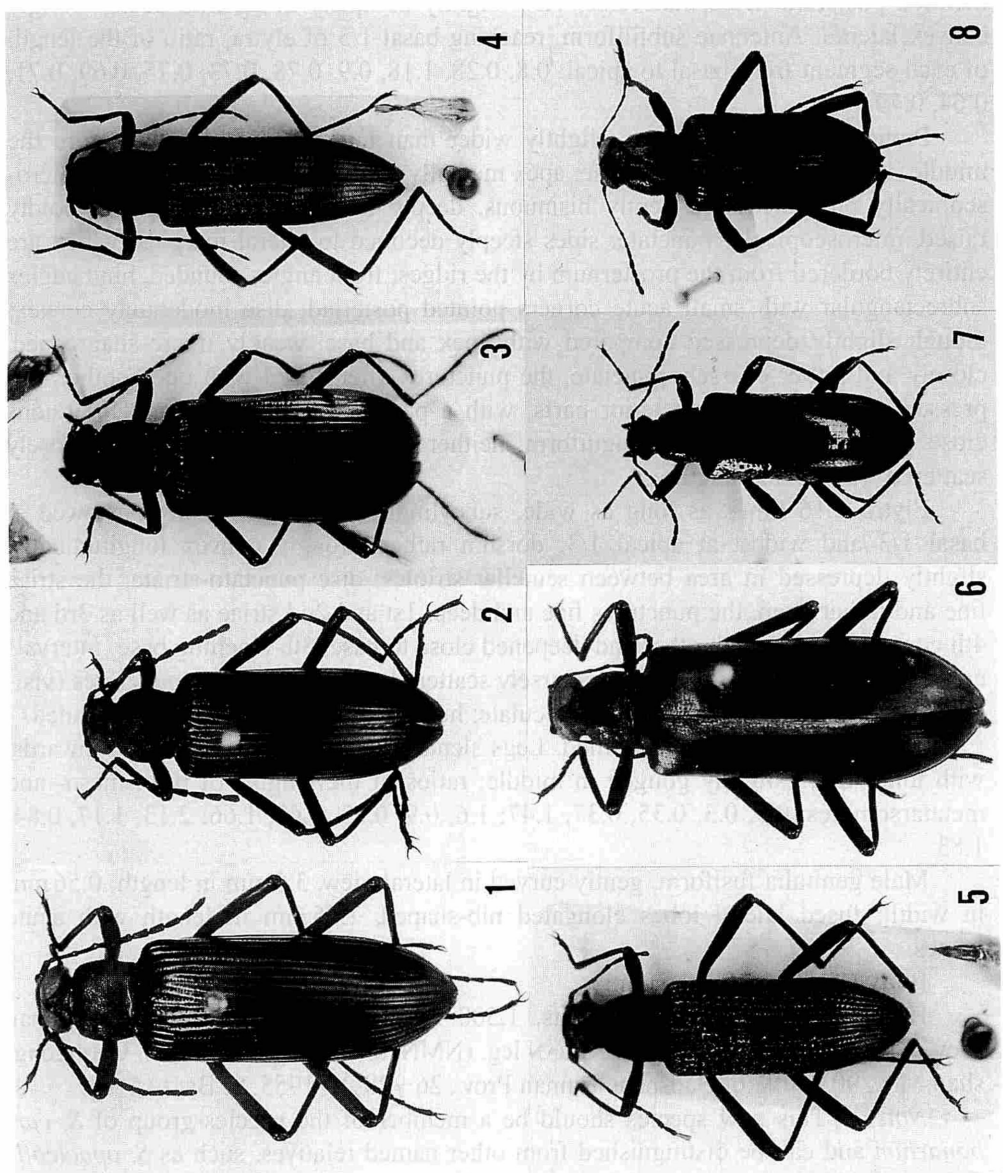
Strongylium yunnanicum sp. nov.

(Figs. 3, 15 & 16)

Dark reddish brown, dorsal surface darker in colour, anterior part of head gently shining, posterior part of head, pronotum, scutellum and elytra sericeously, weakly shining, major part of ventral surface and legs moderately shining. Elongate; convex longitudinally.

Head subrhombic, though the clypeus is weakly projected, micro-shagreened, closely and finely punctate; clypeus wide but short, depressed in basal part, bent in front, fronto-clypeal border widely arcuate and grooved with lateral sides bent ante-

Figs. 1–8. Habitus of *Strongylium* spp. —— 1, *Strongylium ardoinianum* sp. nov., holotype ♂; 2, *S. bhutanicum* sp. nov., holotype ♂; 3, *S. yunnanicum* sp. nov., holotype ♂; 4, *S. spinitibiale* sp. nov., holotype ♂; 5, *S. inspinitibiale* sp. nov., holotype ♂; 6, *S. beardae* sp. nov., holotype ♂; 7, *S. puncakdinginense* sp. nov., holotype ♂; 8, *S. viridistriatum* sp. nov., holotype ♂.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riad; genae obliquely and strongly raised laterad, with rounded outer margins; frons somewhat widely T-shaped, gently inclined forwards, medially with a longitudinal impression, diatone about 0.29 times the width of an eye diameter; vertex rather steeply inclined posteriad. Eyes transverse, very slightly obliquely inlaid into head, strongly convex laterad. Antennae subfiliform, reaching basal 1/5 of elytra, ratio of the length of each segment from basal to apical: 0.8, 0.28, 1.18, 0.9, 0.78, 0.73, 0.75, 0.69, 0.71, 0.64, 0.79.

Pronotum nearly quadrate, slightly wider than long, widest slightly before the middle, weakly sinuous before base; apex medially straight, remarkably ridged, microscopically punctate; base gently bisinuous, deeply bordered from disc and boldly raised, microscopically punctate; sides steeply declined to lateral margins, which are entirely bordered from the prosternum by the ridges; front angles rounded, hind angles subrectangular with small acute corners pointed posteriad; disc moderately convex, though slightly depressed compared with apex and base, weakly micro-shagreened, closely and rather coarsely punctate, the punctures often fused with one another, depressed in anterior and posterior parts, with a pair of vague triangular depressions close to base. Scutellum sublinguiform, neither elevated nor convex, rather closely scattered with small punctures.

Elytra 2.16 times as long as wide, subcylindrical, though weakly narrowed at basal 1/3 and widest at apical 1/3; dorsum rather strongly convex longitudinally, slightly depressed in area between scutellar strioles; disc punctato-striate, the striae fine and rather deep, the punctures fine and deep, 1st and 2nd striae as well as 3rd and 4th connected with each other and deepened close to base, 5th reaching base; intervals convex, weakly micro-shagreened, sparsely scattered with microscopic punctures (visible under 20×), very weakly micro-aciculate; humeri gently swollen; apices rounded.

Male anal sternite not modified. Legs slender; male mesotibiae curved inwards, with inner faces slightly gouged in middle; ratios of the lengths of pro-, meso- and metatarsomeres: 0.5, 0.3, 0.35, 0.37, 1.47; 1.6, 0.9, 0.83, 0.67, 1.66; 2.13, 1.17, 0.84, 1.83.

Male genitalia fusiform, gently curved in lateral view, 3.5 mm in length, 0.56 mm in width; fused lateral lobes elongated nib-shaped, 1.65 mm in length with acute apices.

Body length: 17.5–20.5 mm.

Holotype: ♂, Gaoligongshan Mts., 1,500–2,500 m alt., 25.22 N, 98.49 E, Yunnan Prov., China, 17~24–V–1995, V. KUBÁN leg. (NMNHP). Paratypes: 11 exs., Gaoligongshan Mts., 90 km W. of Baoshan, Yunnan Prov., 26~28–V–1955, S. BEČVÁŘ leg.

Notes. This new species should be a member of the species-group of *S. carbonarium* and can be distinguished from other named relatives, such as *S. opacicolle* FAIRMAIRE, 1891, *S. fangense* MASUMOTO, 1996, etc., by the pronotum remarkably rugoso-punctate and the elytra noticeably sericeous and indistinctly punctate.

Strongylium spinitibiale sp. nov.

(Figs. 4, 17 & 18)

Brownish black with dark greenish or bluish lustre, head, pronotum, scutellum and elytra dark greenish, partly with coppery tinge, eyes and major part of femora brownish yellow, antennae, apical parts of femora, tibiae, tarsi, etc., dark brown; head and pronotum somewhat sericeously shining, scutellum and elytra weakly metallically shining, ventral surface rather alutaceous. Rather elongate; convex longitudinally, though the dorsum is gently flattened and tri-sinuate.

Head subelliptical in frontal view, micro-shagreened, closely, finely punctate; clypeus trapezoidal, rather steeply inclined forwards, weakly bent downwards in front, fronto-clypeal border nearly straight widely in middle, bent anteriad in each lateral part, finely sulcate; genae obliquely rhombical, strongly raised outwards, with rounded outer margins; frons T-shaped, steeply inclined forwards, with a subrhombic impression in posterior part between eyes; vertex weakly depressed. Eyes large, approximate to each other, widely inlaid into head, roundly produced laterad. Antennae nearly filiform, reaching slightly before the middle of elytra, ratio of the length of each segment from basal to apical: 0.6, 0.2, 1.23, 1.18, 0.99, 0.9, 0.89, 0.87, 0.84, 0.79, 0.77.

Pronotum somewhat barrel-shaped, slightly wider than long, widest slightly before the middle, and very feebly sinuous before base; apex nearly straight, bordered in a wide V-shape, area between the border and apical margin ridged and finely punctate, the punctures somewhat transverse; base gently sinuous, bordered from disc by groove, the margin ridged and sparsely punctate; sides steeply declined to lateral margins, which are finely ridged and entire; disc moderately convex, weakly depressed in medial part, micro-shagreened, closely and coarsely punctate, the punctures often fused with one another, with a triangular depression in the middle, and a pair of depressions on each side close to base. Scutellum equilateral triangular, slightly raised, micro-shagreened, scattered with fine punctures.

Elytra 2.94 times as long as wide, 4.35 times the length and 1.35 times the width of pronotum, widest at base and gradually narrowed apicad, though very slightly constricted at basal 1/3; dorsum moderately convex though widely flattened in middle and tri- or quadri-sinuate, highest at basal 1/4; disc with rows of punctures, those in inner part finely striate, those in lateral parts becoming larger and forming foveae, and those in posterior part becoming smaller and deeply striated, each row strongly impressed in basal part; intervals convex, micro-shagreened, sparsely scattered with microscopic punctures, weakly micro-aciculate; humeri gently swollen; apices sharply dehiscent.

Male anal sternite semicircularly excavated, with apex gently emarginate. Legs slender; male protibia with inner face spined at basal 2/5; ratios of the lengths of pro-, meso- and metatarsomeres: 0.34, 0.22, 0.23, 0.25, 1.2; 2.75, 1.2, 0.75, 0.52, 1.39; 3.63, 1.28, 0.71, —.

Male genitalia elongate and highly modified, 5.35 mm in length and 0.8 mm in width, basal piece oblong-ovate; fused lateral lobes prolonged, 3 mm in length,

widened at base, basal 1/4, apical 1/3 and apical 1/10 in dorsal view, with remarkably spatulate apex.

Body length: 12.5–15.5 mm.

Holotype: ♂, Vientiane, Laos, VII–1963, A. BAUDON leg. (MNHNP). Paratypes: 11 exs., same data as for the holotype; 2 exs., Plaine des Jarres, Laos, VII–1964, A. BAUDON leg.

Notes. This new species resembles *Strongylium jucundum* MÄKLIN, 1864, originally described from Hongkong, of which *S. semipupilatum* PIC, 1940, from Tonkin should be a synonym, but can be distinguished from *S. jucundum* by the slenderer body with larger eyes and highly modified male genitalia.

Strongylium inspinitibiale sp. nov.

(Figs. 5, 19 & 20)

Dark brown with dark greenish or bluish lustre, anterior part of head bluish green, posterior part of head, pronotum, scutellum and major central part of elytra dark copper-coloured, bottoms of punctures greenish, lateral and apical parts of elytra (mostly 8th and 9th intervals) with dark greenish tinge, eyes and two apical segments of antennae brownish yellow; head, pronotum and scutellum weakly, slightly sericeously shining, elytra feebly metallically shining; ventral surface moderately, though partly weakly, shining. Rather elongate; convex longitudinally.

Head subdecagonal in frontal view, micro-shagreened, rather closely, coarsely punctate; clypeus subtrapezoidal, gently inclined forwards, bent downwards at apex, fronto-clypeal border nearly straight widely in middle, bent anteriad in each lateral part, finely sulcate, the sulcus reaching the lateral margins; genae obliquely rhombical, strongly raised outwards, with obtusely angulate outer margins; frons T-shaped, steeply inclined forwards, with a shallow impression in posterior part between eyes, which extends to vertex. Eyes rather large, approximate to each other, somewhat obliquely inlaid into head, roundly produced laterad. Antennae nearly filiform, reaching slightly before the middle of elytra, ratio of the length of each segment from basal to apical: 0.63, 0.2, 1.22, 1.18, 1.03, 1.01, 0.98, 0.91, 0.82, 0.78, 0.82.

Pronotum somewhat barrel-shaped, 1.2 times as wide as long, widest slightly before the middle, weakly sinuous before base; apex nearly straight, finely bordered, area between the border and outer margin weakly convex and sparsely scattered with fine punctures; base feebly sinuous, bordered from disc by fine groove, raised and sparsely punctate; sides steeply declined to lateral margins, which are finely ridged, the ridges disappeared in the posterior half; front angles nearly rounded, hind angles obliquely projected posteriad; disc moderately convex, weakly depressed in medial part, micro-shagreened, closely and coarsely punctate, the punctures often fused with one another, with a vague triangular depression in the middle, and a pair of depressions on each side close to base. Scutellum sublinguiform, weakly depressed, micro-shagreened, irregularly wrinkled.

Elytra 2.7 times as long as wide, about 3 times the length and 1.4 times the width of pronotum, widest at base and gradually narrowed apicad, though very slightly constricted at basal 1/3; dorsum moderately convex though widely flattened in middle and quadri-sinuate, highest at basal 1/4; disc with rows of punctures, of which the upper sides are large and somewhat quadrate and the bottoms are small and rounded, those in inner part shallowly striate, those in lateral parts becoming larger and forming foveae, and those in posterior part becoming smaller and deeply striated, 1st to 5th rows strongly impressed at basal parts, 5th reaching basal margin; intervals convex, micro-shagreened, sparsely scattered with microscopic punctures; humeri weakly swollen; apices gently roundly produced.

Male anal sternite semicircularly depressed, with apex slightly emarginate. Legs slender, without peculiarities; ratios of the lengths of pro-, meso- and metatarsomeres: 0.28, 0.24, 0.22, 0.23, 1.2; 1.8, 1.2, 0.8, 0.58, 1.51; 1.72, 0.77, 0.59, 1.36.

Male genitalia subfusiform, gently curved in lateral view, 3.5 mm in length and 0.6 mm in width; fused lateral lobes somewhat nib-shaped, 1.6 mm in length, with prolonged apices.

Body length: 11.5–14.5 mm.

Holotype: ♂, Vientiane, Laos, VII–1963, A. BAUDON leg. (MNHNP). Paratypes: 21 exs., same data as for the holotype; 8 exs., IX–1963, same locality and collector; 1 ex., VII/IX–1964, same locality and collector; 1 ex., I–1964, same locality and collector; 5 exs., Plaine des Jarres, Laos, VII–1964, A. BAUDON leg.; 2 exs., Phontiou, Thakek, Laos, 8–VI–1965, J. RONDON leg.

Notes. This new species resembles *Strongylium spinitibiale* sp. nov., occurring in the same locality and appearing in the same season, but can be distinguished from the latter by the slightly smaller and stouter body with elytral apices rounded, two apical segments of antennae brownish yellow and legs constantly blackish, and male genitalia obviously simple in shape.

Strongylium beardae sp. nov.

(Figs. 6, 21 & 22)

Piceous, elytra and claws dark castaneous, hairs on ventral surface of tarsi brownish yellow; dorsal surface, fore body beneath and metasternum weakly shining, abdomen alutaceous. Elongate; strongly convex longitudinally.

Head somewhat decagonal, closely punctate, very weakly micro-shagreened; clypeus rather transverse, rather strongly bent in front, fronto-clypeal border feebly arcuate and grooved; genae strongly raised and roundly produced laterad, with depressions in inner parts; frons somewhat T-shaped, finely rugoso-punctate, steeply inclined forwards, vaguely impressed in posterior part between eyes; vertex gradually inclined posteriad. Eyes large and ovoid, approximate to each other, broadly inlaid into head, strongly convex laterad. Antennae subfiliform, reaching basal 1/6 of elytra, ratio of the length of each segment from basal to apical: 0.75, 0.28, 1.22, 0.85, 1.05, 0.8, 0.68,

0.59, 0.58, 0.55, 0.61.

Pronotum subquadrate, 1.3 times as wide as long, gently produced laterad, weakly sinuous in posterior parts, widest at apical 2/5; apex very weakly produced, finely bordered, area between the border and apical margin sparsely scattered with minute punctures; base widely bisinuous, bordered from disc by a groove, which is somewhat trisinuous, area between the groove and basal margin raised and irregularly punctate; front angles rounded, hind angles rather acutely projected; disc weakly micro-shagreened, closely, irregularly punctate, the punctures often fused with one another, with an impunctate medial part, and also with a pair of vague impressions at basal 1/3. Scutellum sublinguiform, slightly raised, coarsely punctate in middle.

Elytra about twice as long as wide, feebly widened posteriad, widest at apical 1/3, then rounded; dorsum strongly convex, highest at the middle, weakly depressed along scutellar strioles; disc with rows of fine punctures, which are sometimes fused or connected by fine striae with one another in the anterior and middle portions, and become smaller and striated in the apical portion; intervals almost flattened, micro-shagreened, rather noticeably micro-aciculate, scattered with minute punctures; humeri swollen; apices slightly roundly produced.

Male anal sternite feebly depressed in apical part. Legs slender, without any special modification; ratios of the lengths of pro-, meso- and metatarsomeres: 0.67, 0.34, 0.35, 0.33, 1.58; 2.45, 0.95, 0.81, 0.74, 1.8; 2.77, 1.18, 0.79, 1.8.

Male genitalia elongated subfusiform, weakly curved in lateral view, 3.8 mm in length and 0.6 mm in width; fused lateral lobes nib-shaped, 1.78 mm in length, with prolonged apices.

Body length: 24–25 mm.

Holotype: ♂, Mt. Victoria, Chinhills, 2,200 m alt., Burma, IV–1938, G. HEINRICH leg. (NHML). Paratypes: 2 exs., same data as for the holotype; 1 ex., V–1938, 1 ex., VI–1938, same locality and collector as for the holotype.

Notes. This new species resembles *Strongylium instriatum* PIC, 1940, originally described from India, but can be distinguished from the latter by the smaller (28 mm in *S. instriatum*) and slenderer body, with pronotum more finely punctate, scutellum distinctly coarsely punctate, elytra dark castaneous and intervals noticeably micro-aciculate. Another undescribed species related to *S. instriatum* occurs in eastern Tibet, though the male specimen has not been found as yet.

Strongylium puncakdinginense sp. nov.

(Figs. 7, 23 & 24)

Piceous, head, pronotum and scutellum with dark coppery tinge, elytra dark greenish tinge, basal parts of femora and tibiae, tarsi, etc., reddish brown, hairs on legs (mostly beneath) brownish yellow; head and pronotum gently shining, elytra strongly so, ventral surface mostly alutaceous. Elongate; strongly convex longitudinally.

Head subdecagonal, rather closely, irregularly punctate; clypeus rather remarkably

projected forwards, gradually inclined apicad, fronto-clypeal border widely arcuate and finely sulcate; genae oblique, finely punctate, strongly raised outwards, with rounded outer margins; frons widely T-shaped, gently inclined forwards, medially with a vague impression, diatone about 0.4 times the width of an eye diameter; vertex gently inclined posteriad, medially with an impunctate area. Eyes medium-sized, rather transverse, obliquely inlaid into head, roundly produced laterad. Antennae subfiliform, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.65, 0.2, 1.0, 0.82, 0.62, 0.61, 0.59, 0.6, 0.58, 0.61, 0.73.

Pronotum trapezoidal, 1.2 times as wide as long, roundly produced laterad, sinuous before base, widest slightly before the middle; apex nearly straight, widely triangularly bordered, apical marginal area microscopically punctate in posterior part; base very weakly bisinuous, bordered from disc by deep groove, area between the groove and posterior margin ridged and sparsely scattered with microscopic punctures; sides steeply declined to lateral margins, which are bordered from the prosternum by the fine ridges; front angles rounded, hind angles slightly projected; disc moderately convex, irregularly scattered with strong punctures, which are sometimes fused with one another, with a pair of oblique depressions close to base. Scutellum sublinguiform, elevated, with surface not flat and sparsely scattered with fine punctures.

Elytra 2.46 times as long as wide, 4.91 times the length and 1.64 times the width of pronotum, subparallel-sided though very weakly constricted at basal 1/3; dorsum strongly convex longitudinally, though weakly sinuate at basal 1/4, 1/2, etc., highest at basal 1/5; disc with rows of punctures, which are small and closely set in internal part, and large and sparsely set in lateral parts, punctures in lateral parts sometimes fused with one another and forming elongated foveae, 1st and 2nd rows, and sometimes 3rd and 4th, connected with each other near base and deeply impressed, 5th impressed close to base; humeri rather noticeably swollen; apices roundly produced and remarkably dehiscent.

Male anal sternite weakly depressed in apical part, truncate at apex with a pair of indistinct swellings at basal 1/3. Legs slender, without modifications; ratios of the lengths of pro-, meso- and metatarsomeres: 0.36, 0.31. 0.28, 0.26, 1.16; 1.1, 0.67, 0.56, 0.41, 1.38; 1.18, 0.6, 0.4, 1.36.

Male genitalia elongated fusiform, very weakly constricted between basal piece and lateral lobes, gently curved in lateral view, 2.7 mm in length and 0.49 mm in width; fused lateral lobes elongated nib-shaped, 1.4 mm in length, with apex not acute, microscopically punctate.

Body length: 14–15 mm.

Holotype: ♂, Puncak Dingin, Sulawesi, 17–X–1985, M. TAO leg. Paratypes: 3 exs., 13–XI–1985, 17–XI–1985, same locality and collector as for the holotype.

Notes. This new species somewhat resembles *Strongylium kenokokense* MASUMOTO, 1998, from Borneo, but can be distinguished from the latter by the punctures on the dorsal surface weaker, the pronotum not impressed in the antero-medial part, and the elytral apices remarkably dehiscent.

Strongylium viridistriatum sp. nov.

(Figs. 8, 25, 26 & 27)

Brownish black, head, pronotum, scutellum, sutural intervals, 8th and 9th intervals, legs, major part of ventral surface, etc., with dark greenish, or sometimes coppery to brassy tinge, major part of elytra except for sutural, 8th and 9th intervals purplish; dorsal surface except for scutellum weakly, sericeously shining, scutellum metallically shining, ventral surface alutaceous, and partly weakly shining. Oblong-ovate; strongly convex above and somewhat hunchbacked.

Head subdecagonal, weakly micro-shagreened, rather closely punctate; clypeus semicircular, gently inclined forwards, bent downwards in front, fronto-clypeal border widely arcuate and finely sulcate; genae obliquely subrhombical, strongly raised outwards; frons finely T-shaped, steeply inclined forwards, with a rhombic impression in posterior parts between eyes; vertex gently inclined posteriad, with impressions along hind margins of eyes. Eyes approximate to each other, widely inlaid into head, roundly convex laterad. Antennae slightly clavate, though the apical parts are flattened, ratio of the length of each segment from basal to apical: 0.7, 0.2, 1.05, 0.63, 0.57, 0.68, 0.65, 0.58, 0.53, 0.52, 0.57.

Pronotum short barrel-shaped, slightly wider than long, gently produced laterad, sinuous in basal 1/3, widest at the middle; apex very slightly produced, distinctly bordered in a wide U-shape, area between border and apical margin gently raised and scattered with microscopic punctures; base widely triangularly bordered, raised and microscopically punctate, very slightly sinuous on each side; sides steeply declined to lateral margins, which are ridged in apical 2/3; front angles rounded, hind angles subrectangular; disc moderately convex, micro-shagreened, rather frequently punctate, the punctures intermixed with smaller ones, with a medial impression, and also with a somewhat triangular depression on each side close to base. Scutellum triangular, gently elevated, micro-shagreened, sparsely scattered with microscopic punctures.

Elytra twice as long as wide, 3.13 times the length and 1.48 times the width of pronotum, gradually narrowed apicad, though very weakly constricted at basal 1/3; dorsum strongly convex, with a pair of swellings at basal 1/7, areas between and behind them gently depressed; disc punctato-striate, the striae shallow, the punctures deep and somewhat longitudinally ovate, those in lateral portions becoming larger, and forming foveae, 1st and 2nd striae, and often 3rd and 4th, connected with each other near base, 5th deepened close to base and reaching base; intervals irregularly convex, micro-shagreened, sparsely scattered with microscopic punctures, microscopically wrinkled; humeri swollen; apices rounded, rather remarkably expanded posteriad.

Male 1st and 2nd abdominal sternites depressed in middle, male anal sternite remarkably excavated in major apical part, with truncate apex. Male protibia with inner face gouged widely in middle, weakly twisted in apical 2/3; male metatibia flattened and twisted in middle; ratios of the lengths of pro-, meso- and metatarsomeres: 0.4, 0.25, 0.22, 0.28, 1.2; 2.25, 1.0, 0.75, 0.64, 1.56; 1.85, 0.79, 0.63, 1.56.

Male genitalia rather slender, constricted in middle, gently curved in lateral view, 2.85 mm in length, 0.52 mm in width; fused lateral lobes rather elongate, 1.24 mm in length, medially grooved, with acute apices.

Body length: 13.5–16.5 mm.

Holotype: ♂, Montes Mauson, Tonkin, IV–V. 2–3,000′, Coll. H. FRUHSTORFER (MNHNP). Paratypes: 7 exs., same data as for the holotype; 1 ex., "*dorsocupreum* To", Coll. P. ARDOIN.

Notes. This new species resembles *Strongylium dorsocupreum* FAIRMAIRE, 1903, originally described from Tonkin, but can be distinguished from the latter by the dorsal surface less metallically shining, the eyes not roundly but rather obliquely inlaid into the head, the sutural intervals always dark greenish, and the male metatibiae more strongly flattened and twisted.

I had an opportunity of examining a small series of specimens from Guizhou, China, which closely resemble the new species. As the Guizhou specimens can be discriminated from the latter by such characteristics as the basal part of elytra dark greenish, etc., I will possibly describe them as a subspecies of this new species in the future.

Judging from the somewhat hunchbacked body, the elytra with a pair of swellings and the anal sternite distinctly excavated in the male, this species seems related to the species-group of *S. gravidum*.

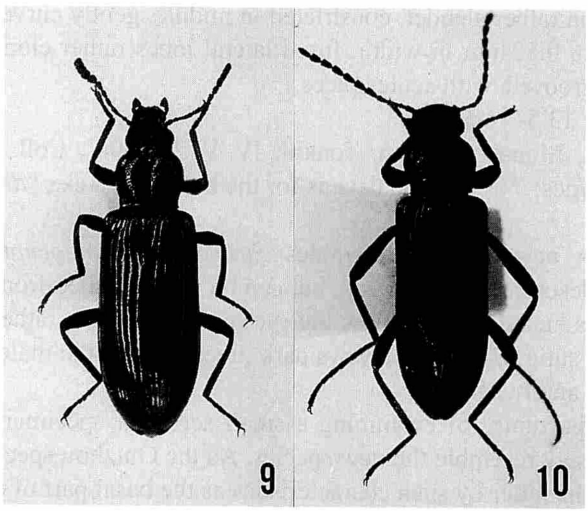
Strongylium katsumii sp. nov.

(Figs. 9, 28 & 29)

Piceous, dorsal surface with dark greenish or somewhat ferrous tinge, mouth parts, tibiae, coxae, etc., lighter in colour, hairs on mouth parts and ventral surfaces of legs brownish yellow; dorsal surface metallically shining, ventral surface somewhat alutaceous. Elongate; rather flattened in middle.

Head somewhat elliptical, though the clypeus is projected antero-ventrad, microshagreened; clypeus semicircular, closely punctate, depressed in posterior part, bent in front, fronto-clypeal border deeply, semicircularly impressed; genae finely punctate, rather strongly raised laterad, depressed before eyes, with rounded outer margins; frons somewhat boldly I-shaped, gently inclined forwards, longitudinally impressed in the middle, scattered with punctures, which become smaller and closer in lateral parts, diatone about the same in width as an eye diameter in dorsal view; vertex almost concealed beneath pronotum. Eyes large, subreniform in dorsal view, obliquely inlaid into head, noticeably convex laterad, with the borders of frons weakly grooved. Antennae subclavate, 1st to 6th segments longer than wide, 7th equilateral triangular, 8th to 11th wider than long, reaching basal 1/5 of elytra, ratio of the length of each segment from basal to apical: 0.45, 0.2, 0.73, 0.49, 0.41, 0.39, 0.37, 0.38, 0.35, 0.32, 0.38.

Pronotum 1.17 times as wide as long, roundly produced laterad, widest at apical 2/5, noticeably constricted in basal parts; apex almost straight, widely triangularly bordered, impunctate; base weakly bisinuous, rather boldly bordered by a deep impres-



Figs. 9–10. Habitus of *Strongylium* spp. —— 9, *Strongylium katsumii* sp. nov., holotype ♂; 10, *S. iridi-dorsale* sp. nov., holotype ♂.

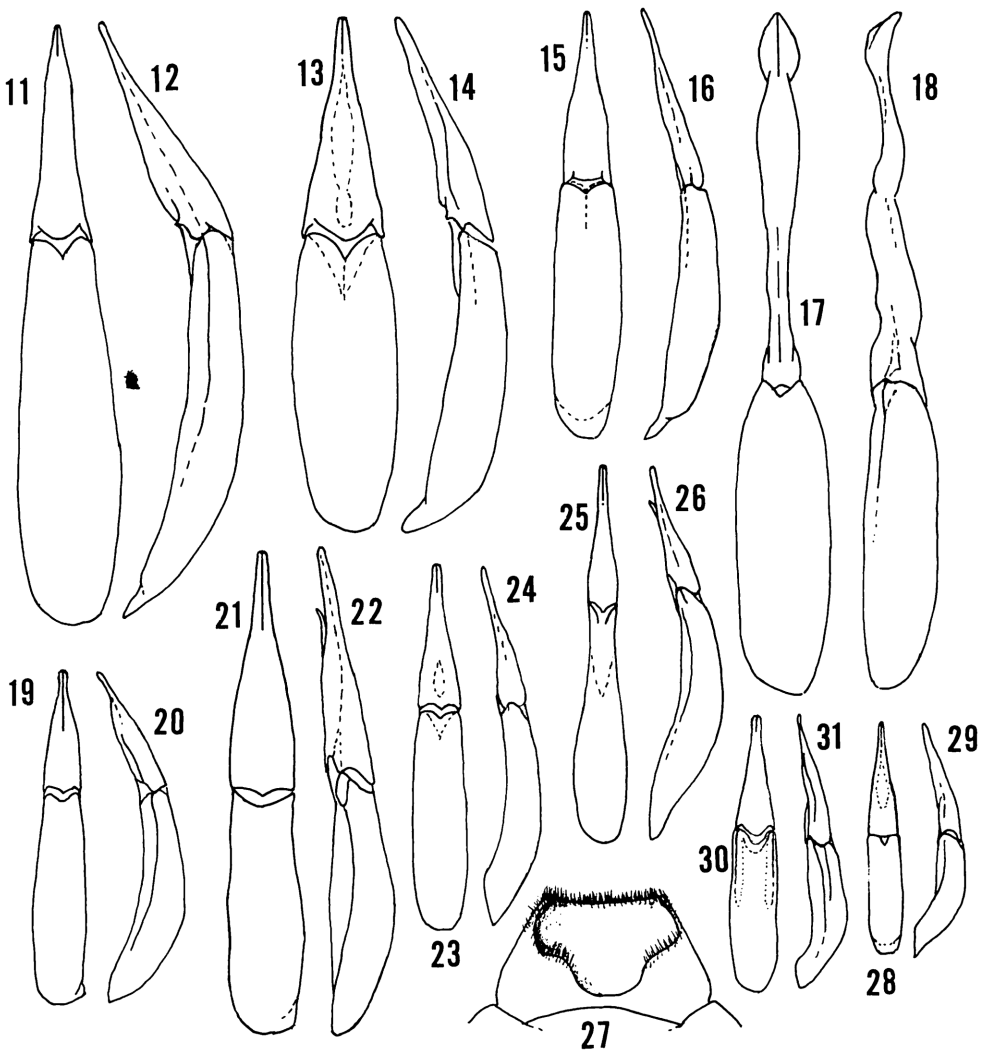
sion, which is distinctly bisinuous in middle, with a short longitudinal ridge on each side; sides steeply declined to lateral margins, which envelope the prothorax, and are finely bordered from the prosternum; front angles rounded, hind angles almost rectangular with weakly projecting corners; disc gently convex, remarkably depressed in the middle with a longitudinal impression, rather closely, irregularly punctate, sparsely scattered with minute punctures among larger ones. Scutellum subcordate, weakly elevated, micro-shagreened, sparsely scattered with fine punctures, with a transverse impression near base in the case of the type specimen.

Elytra elongated fusiform though the base is truncate, 2.13 times as long as wide, 3.48 times the length and 1.51 times the width of pronotum, subparallel-sided, though feebly widened in posterior portions, widest at apical 3/8; dorsum gently convex, transversely depressed at basal 1/4 and longitudinally so between two swellings at basal 1/8, which are the highest; disc punctato-striate, the striae fine and often interrupted, the punctures deep but not so large; intervals weakly convex, micro-shagreened, micro-aciculate, and scattered with microscopic punctures; humeri gently swollen longitudinally; apices roundly produced and rather remarkably extended posteriad.

Anal sternite not modified in male. Legs without modification; ratios of the lengths of pro-, meso- and metatarsomeres: 0.35, 0.2, 0.2, 0.2, 1.2; 0.8, 0.6, 0.37, 0.26, 1.35; 1.27, 0.53, 0.36, 1.36.

Male genitalia elongated fusiform, gently curved in basal part and almost straight in middle and apical parts in lateral view, 1.75 mm in length and 0.32 mm in width; fused lateral lobes elongated nib-shaped, 0.8 mm in length, with acute apex.

Body length: 10.3 mm.



Figs. 11–31. Male genitalia (11–26, 28–31) and male anal sternite (27). —— 11–12, *Strongylium ardoinianum* sp. nov., dorsal view (11), and lateral view (12); 13–14, *S. bhutanicum* sp. nov., dorsal view (13) and lateral view (14); 15–16, *S. yunnanicum* sp. nov., dorsal view (15) and lateral view (16); 17–18, *S. spinitibiale* sp. nov., dorsal view (17) and lateral view (18); 19–20, *S. inspinitibiale* sp. nov., dorsal view (19) and lateral view; 21–22, *S. beardae* sp. nov., dorsal view (21) and lateral view (22); 23–24, *S. puncakdinginense* sp. nov., dorsal view (23) and lateral view (24); 25–27, *S. viridistriatum* sp. nov., dorsal view (25), lateral view (26), and anal sternite (27); 28–29, *S. katsumii* sp. nov., dorsal view (28) and lateral view (29); 30–31, *S. iridiodorsale* sp. nov., dorsal view (30) and lateral view (31).

Holotype: ♂, Lishan, 1,500 m alt., Taichung Hsien, C. Taiwan, 29–VII–1984, K. AKITA leg. (NSMT).

Notes. This new species resembles *S. fisicolle* FAIRMAIRE, 1903, from Haut-Tonkin, in having the elongated body with subclavate antennae, longitudinally depressed pronotum and depressed elytra, hence the two species should form a species-group. The former can be distinguished from the latter by the eyes larger and more strongly convex laterad, elytral depressions weaker and the male genitalia obviously more elongated.

Strongylium iridiodorsale sp. nov.

(Figs. 10, 30 & 31)

Blackish brown, dorsal surface darker in colour, head partly with greenish lustre, pronotum with an iridescent metallic patch, the central part of which is dark green, surrounded by purple and yellowish green bands (whole of pronotum almost purplish in some individuals); elytron with an iridescent elongate metallic patch, the central part of which is dark green, and surrounded by purple and yellow green bands, 1st intervals greenish golden, 8th and 9th with greenish blue. Rather elongate; moderately convex longitudinally, though weakly flattened in middle.

Head semicircular, finely punctate; clypeus transversely hexagonal, flattened in posterior part, bent downwards in front, fronto-clypeal border very slightly arcuate and deeply sulcate; genae oblique, raised outwards, with rounded outer margins; frons T-shaped, gently inclined forwards, with an impression in posterior part between eyes; vertex inclined posteriad, concealed under pronotum. Eyes large, approximate to each other, obliquely inlaid into head, strongly convex laterad, with a groove along each hind margin. Antennae subfiliform, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.46, 0.2, 0.58, 0.41, 0.54, 0.44, 0.42, 0.41, 0.39, 0.42, 0.58.

Pronotum 1.25 times as wide as long, roundly produced laterad, widest at the middle; apex weakly produced and finely bordered, the border interrupted in the middle; base slightly bisinuous, bordered from disc by deep sulcus, area between the border and posterior margin ridged and sparsely scattered with microscopic punctures; sides gently declined to lateral margins, which are finely ridged and visible from above; front angles rounded, hind angles subrectangular with slightly acute corners; disc moderately convex, frequently punctate, sparsely scattered with far smaller punctures among larger ones, longitudinally depressed in medial part and transversely so in basal 1/5, with a pair of oblique impressions at basal 1/5, and also with a sulcus along each lateral margin close to base. Scutellum short linguiform, elevated, very weakly micro-shagreened, sparsely scattered with microscopic punctures.

Elytra 2.34 times as long as wide, 3.85 times the length and 1.3 times the width of pronotum, widest at base, gradually narrowed apicad, though very slightly constricted at basal 1/3; dorsum strongly convex, though the middle part is flattened and very

weakly sinuous, highest at basal 2/5; disc with rows of punctures, which are somewhat ovate, closely set in inner portion, and sparsely so in lateral portions, 1st and 2nd rows connected with each other near base, 5th rows deeply impressed close to base; humeri feebly swollen; apices simply, roundly produced.

Male anal sternite very feebly depressed in apical part. Legs without modification; ratios of the lengths of pro-, meso- and metatarsomeres: 0.29, 0.21, 0.23, 0.25, 1.2; 1.8, 0.8, 0.62, 0.49,1.27; 1.63, 0.58, 0.4, 1.13.

Male genitalia elongated fusiform, gently curved in lateral view, 2 mm in length and 0.3 mm in width; fused lateral lobes prolonged, 0.8 mm in length, with slightly spatulate apices.

Body length: 8.5–10.5 mm.

Holotype: ♂, near Keningau, Sabah, N. Borneo, 22–III–1988, M. ITO leg. (NSMT). Paratypes: same locality and collector as for the holotype, 1 ex., 23–III–1988, 1 ex., 15–IV–1988, 1 ex., 22–IV–1988, 1 ex., 11–III–1988; 1 ex., Ranau, Borneo, 22–VI–1980, S. NAGAI leg.; 2 exs., Headquarter, Sabah, 30–IV–1981, M. TAO leg.; 2 exs., 16 miles NW. of Keningau, 1,400 m alt., Sabah, 12～19–VIII–1983, Y. NOTSU leg.; 1 ex., nr. Keningau, Sabah, 2–I–1981, M. TOYAMA leg.; 1 ex., Keningau, 1,000 m alt., Sabah, 7～12–IX–1980, Y. GUNJI leg.; 1 ex., Keningau, Sabah, 31–V–1992, M. ITO leg.; nr. Keningau, Sabah, 1 ex., 28–IV–1994, 1 ex., 5–V–1994, M. ITO leg.; 1 ex., Kimanis Rd., Keningau, 3–III–1994, no collector's name; 1 ex., Sabah, no further detailed data; 1 ex., Keningau, Sabah, 15–V–1981, M. TAO leg.; Headquarters, 1,500–1,700 m alt., Mt. Kinabalu, Sabah, 1 ex., 26–III–1976, 1 ex., 15–IV–1976, 1 ex., 16–IV–1976, S. NAGAI leg. (MNHNP); Headquarters, 1,500–1,600 m alt., Kinabaru, at light, 1 ex., 12–XI–1996, 1 ex., 13–XI–1996, 1 ex., 14–XI–1996, D. GRIMM leg.; 1 ex., Crocker Range, 900–1,200 m alt., 16～20–XI–1996, W. SCHAWALLER leg. (SMNS).

Notes. This new species is easily distinguishable from the other named species by the stout, flattened, iridescent body, with lateral margins of pronotum remarkably impressed near the base. Allied species are widely distributed in the Malay Peninsula, the Philippines and India. GEBIEN seemed to have prepared for describing one of these relatives from Bombay as "*S. bombayense*" before his death. The female material is now preserved in the Zoology and Museum, Polish Academy of Sciences in Warsaw.

要　　約

益本仁雄：アジア産ナガキマワリ族（Strongyliini）の研究．VIII．東アジアのナガキマワリ属の10新種について．—— アジア産ナガキマワリ族の研究の第8回として，東アジアに分布するナガキマワリ属（*Strongylium*）の10新種を記載した．新たに与えた種名は次のとおりである．*Strongylium ardoinianum* sp. nov., *S. bhutanicum* sp. nov., *S. yunnanicum* sp. nov., *S. spinitibiale* sp. nov., *S. inspinitibiale* sp. nov., *S. beardae* sp. nov., *S. puncakdinginense* sp. nov., *S. viridistriatum* sp. nov., *S. katsumii* sp. nov., *S. irididorsale* sp. nov．なお，今後，種群ごとにまとめることを考慮して，各種の近似種をノートに可能な限り明記した．

Reference (Additional)

MASUMOTO, K., 1998. Study of Asian Strongyliini (Coleoptera, Tenebrionidae). V. Twenty new species of the genus *Strongylium* from East Asia. *Elytra, Tokyo*, **26**: 173–200.

Elytra, Tokyo, **27** (2): 352, November 13, 1999

Record of *Agathidium* (*Microceble*) *carinatum* (Coleoptera, Leiodidae) from Kyushu, Japan

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Agathidium (*Microceble*) *carinatum* ANGELINI et DE MARZO, 1988 was described from Honshu and Shikoku, Japan. In 1996, I made a collecting trip to Mt. Kurodake, Kyushu, and collected some specimens of this species by using Berlese funnels. I will record it for the first time from Kyushu in the present report. Before going further, I wish to express my sincere gratitude to Prof. Junichi YUKAWA (Kyushu University) for continuous guidance.

Agathidium (*Microceble*) *carinatum* ANGELINI et DE MARZO, 1988

[Japanese name: Jôshû-maru-tamakinokomushi]

Agathidium (*Microceble*) *carinatum* ANGELINI et DE MARZO, 1988, Ent. Bari, **23**: 116 (Honshu and Shikoku). —— ANGELINI, 1995, Mus. reg. Sci. nat. Torino, Monogr., **18**: 444.

Specimens examined. 1♂, 2♀♀, Mt. Kurodake, Ôita Pref., Kyushu, 24–VII–1996, H. HOSHINA leg.

Distribution. Japan (Honshu, Shikoku, and Kyushu).

Remarks. This species is similar in appearance to *Agathidium* (*Microceble*) *ciliatum* PORTEVIN, 1908, but the proximal part of the aedeagus is more twisted than in the latter.

References

ANGELINI, F., 1995. Revisione tassonomica delle specie paleartiche del genere *Agathidium* PANZER (Coleoptera: Leiodidae: Agathidiini). *Mus. reg. Sci. nat. Torino, Monogr.*, **18**: 1–485.

——— & L. DE MARZO, 1988. Anisotomini del Giappone (Coleoptera, Leiodidae). *Ent. Bari*, **23**: 47–122.

Elytra, *Tokyo*, **27** (2): 353–370, November 13, 1999

Additions to *Plesiophthalmus* and its Allied Genera (Coleoptera, Tenebrionidae, Amarygmini) from East Asia, Part 1

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Abstract Ten new species of *Plesiophthalmus* and its allied amarygmine genera and a new amarygmine genus are described from East Asia under the following names: *Plesiophthalmus birmanicus* sp. nov., *P. guizhouensis* sp. nov., *P. sichuanicus* sp. nov., *P. beardae* sp. nov., *P. sericidorsalis* sp. nov., *P. bremeri* sp. nov., *P. javaensis* sp. nov., *P. keralaensis* sp. nov., *Spinodietysus becvari* sp. nov., *Eumolpamarygmus becvari* sp. nov., and *Becvaramarygmus* gen. nov. (with *Dietysus atricolor* Pic as the type species).

From 1988 to 1991, I published a revision of the East Asian species of the tenebrionid genus *Plesiophthalmus* and its allied genera. In this series of revisional studies, twelve genera and more than 140 species including approximately 60 new species were dealt with. Since then, I have received many interesting materials of this group for examination from my friends in entomology and also from museums in Europe. In this paper, I am going to describe new taxa of the group.

Before going into further details, I wish to express my cordial thanks to Mr. Stanislav Bečvář, Czech Academy of Sciences, Dr. Hans J. Bremer, Heidelberg, Dr. Bernhard Merz, Muséum d'Histoire Naturelle, Genève, Mrs. Jane Beard, the Natural History Museum, London, and Mr. Kunio Kume, Tokyo, for submitting the materials to me for taxonomic study. Thanks are also due to Mr. Seiji Morita, Tokyo, for taking photographs inserted in this paper. I deeply appreciate the kindness of Dr. Shun-Ichi Uéno, National Science Museum (Nat. Hist.), Tokyo, for constant guidance of my entomological studies.

The holotypes will be deposited in the museums cited in the texts. Abbreviations used for the depository of the types are as follows: NSMT=National Science Museum (Nat. Hist.), Tokyo; NMNHP=National Museum (Nat. Hist.), Praha; ZSM=Zoologische Staatssammulung, München; MHNG=Muséum d'Histoire Naturelle, Genève; NHML=The Natural History Museum, London.

I. Genus *Plesiophthalmus* MOTSCHULSKY, 1857

Plesiophthalmus birmanicus sp. nov.

(Figs.1, 12–13)

Dark brown, head and pronotum almost black with coppery lustre, elytra slightly lighter in colour than head and pronotum and also with coppery lustre. Oblong-oval, strongly convex above.

Head somewhat transversely elliptical in frontal view, though the clypeus is vertically projected, rather closely punctate; clypeus somewhat transversely hexagonal, oblique against frons, with short membranous apical part, fronto-clypeal border nearly straight in middle, curved apicad in lateral parts; genae oblique, raised in lateral parts, with outer margins rounded; frons rather broad, almost vertical, though the posterior part between eyes is gently flattened, diatone 0.68 times the width of an eye diameter; vertex inserted beneath prothorax. Eyes large, somewhat transversely comma-shaped in dorsal view. Antennae subfiliform in basal part, though the apical 7 segments are lost in the holotype, ratio of the length of each segment from basal to apical: 0.6, 0.2, 1.0, 0.58, —, —, —, —, —, —, —.

Pronotum 1.67 times as wide as long, widest at basal 2/5; apex almost straight in dorsal view, bordered and rimmed; base weakly produced, very feebly sinuous on each side, not bordered; front angles rectangular though the corners are not angulate, hind angles obtuse though the corners are angulate; sides steeply declined to lateral margins, which are bordered; disc somewhat transversely convex, smooth but rather frequently, microscopically punctate, with an oblique, vague impression on each side close to base. Scutellum somewhat wide pentagonal, very slightly convex, very sparsely scattered with microscopic punctures.

Elytra 1.47 times as long as wide, 3.7 times the length and 1.58 times the width of pronotum, widest slightly before the middle; dorsum strongly convex, highest at basal 1/3; disc with rows of punctures, which are rounded in middle, and slightly ovate in lateral portions, distance between them 1.5–3 times their own diameter, 5th rows weakly impressed near base; intervals nearly flat and rather wide, very sparsely scattered with microscopic punctures; sides steeply declined to lateral margins, which are bordered and weakly impressed at basal 1/3 from each side; humeri gently swollen; apices rounded.

Male anal sternite truncate and feebly emarginate at apex. Legs slender; profemur thickened in middle, with anterior face weakly spined at apical 2/5; male protibia weakly bent in middle, with interio-ventral face gouged in middle; meso- and metatibiae gently, evenly curved inwards; ratios of the lengths of pro-, meso- and metatarsomeres: 0.45, 0.3, 0.26, 0.27, 1.2; 0.63, 0.38, 0.34, 0.31, 1.21; 1.33, 0.52, 0.29, 1.23.

Male genitalia elongated fusiform, 3.35 mm in length, 0.8 mm in width, gently curved in lateral view; fused lateral lobes nib-shaped, 1 mm in length, with apico-lateral parts finely asperate.

Body length: 8–12 mm.

Holotype. ♂, "Birmah, Ruby Mes., DOHERTY, 64749, Fry coll. 1905.100." (NHML). Paratypes. 5 exs., Taunggyi, Shan State, WS. Burma, 1～18–VI–1997, J. KALAB leg.

Notes. This new species belongs to the species-group of *P. gokani* and resembles *P. kurosawai* MASUMOTO, 1991, originally described from northeastern India, but can be distinguished from the latter by the pronotum more weakly punctate, the elytra with rows of stronger punctures, the lateral margins almost wholly visible from above, the male meso- and metatibiae obviously gently curved, and the male genitalia slightly slenderer.

Plesiophthalmus guizhouensis sp. nov.

(Figs. 2, 14–15)

Piceous, with dark greenish metallic tinge, mouth parts, palpi, apical portion of 4th visible abdominal and anal segments, claws, etc., more or less brownish; head sericeous, pronotum and elytra strongly, somewhat vitreously shining, ventral surface alutaceous and clothed with fine hairs. Oblong-ovate, rather hunchbacked.

Head somewhat transversely elliptical in frontal view, almost vertical, micro-shagreened, rather closely, finely punctate, though the area between eyes is rather sparsely so, each puncture with a microscopic bent hair; clypeus transversely hexagonal, flattened in basal part, bent downwards in frontal half, fronto-clypeal border slightly arcuate in middle, bent obliquely forwards and reaching outer margins in lateral parts; genae obliquely subrhombical, raised and roundly produced in outer parts, areas before eyes somewhat triangularly depressed; frons rather wide, feebly flattened, diatone 1.5 times the width of an eye diameter in dorsal view; vertex almost beneath pronotum. Eyes transversely comma-shaped in dorsal view, moderately, roundly convex laterad. Antennae long though slightly thickened apicad, extending beyond the middle of elytra, ratio of the length of each segment from basal to apical: 0.6, 0.2, 1.0, 0.67, 0.78, 0.71, 0.68, 0.59, 0.63, 0.57, —.

Pronotum subtrapezoidal, 1.4 times as wide as long, widest slightly behind the middle, roundly narrowed for- and backwards, slightly sinuous before base; apex almost straight, finely bordered; base slightly bisinuous, feebly emarginate in the opposite to scutellum; sides steeply declined to lateral margins, which are clearly bordered and visible from above except for the areas near front angles; front angles rectangular with rounded corners, hind angles obtuse though the corners are angulate; disc strongly convex, nearly hemispherical, weakly micro-shagreened, frequently scattered with round microscopic punctures, with a vague, medio-longitudinal impression and two pairs of weak, oblique impressions at posterior 1/4. Scutellum triangular, smooth, sparsely scattered with microscopic punctures, which are smaller than those on the pronotum.

Elytra somewhat elongated elliptical, 1.6 times as long as wide, 3 times the length and 1.44 times the width of pronotum, widest at apical 4/9; dorsum strongly convex, swollen at basal 1/4 and highest at basal 2/9, remarkably depressed in an inverted V-

shape before the swelling, and also obliquely depressed at basal 1/4 in lateral parts of elytra; disc with rows of small punctures, which are slightly ovate and sometimes connected with one another with shallow striae; intervals very slightly elevated, very weakly micro-shagreened, mirco-aciculate, very sparsely scattered with microscopic punctures; sides steeply declined to lateral margins, which are gently expanded laterad and very finey rimmed; base micro-crenulate; humeri well swollen, hence the lateral margins are invisible from above; apices roundly produced posteriad.

Male anal sternite slightly truncate, not bordered along outer margin. Legs slender; profemur sharply spined at apical 1/4 on front face; male protibia evenly curved, with interio-ventral face thickened and haired in apical 3/5; ratios of the lengths of pro-, meso- and metatarsomeres: 0.6, 0.33, 0.28, 0.25, 1.2; 1.1, 0.4, 0.27, 0.24, 1.28; 1.8, 0.5, 0.39, 1.3.

Male genitalia fusiform, 2.5 mm in length, 0.6 mm in width, curved near basal part in lateral view; fused lateral lobes 0.76 mm in length, rather abruptly narrowed apicad from basal 1/3, with acute apex.

Holotype: ♂, Fanjing Shan, Kuaichan, 20 km NW. of Jiangkou, CH–Guizhou NE., China, 27–V~3–VI–1995, E. JENDEK & O. SAUŠA leg. (NMNHP).

Notes. This new species also resembles *Plesiophthalmus fukiensis* MASUMOTO, 1990, from Fujian (Fukien), belonging to the species-group of *P. fujitai*, but can be distinguished from the latter by the narrower pronotum, the more strongly depressed elytra, with rows of small punctures hardly striated, the male protibia more obviously thickened in the apical part, and the slenderer male genitalia.

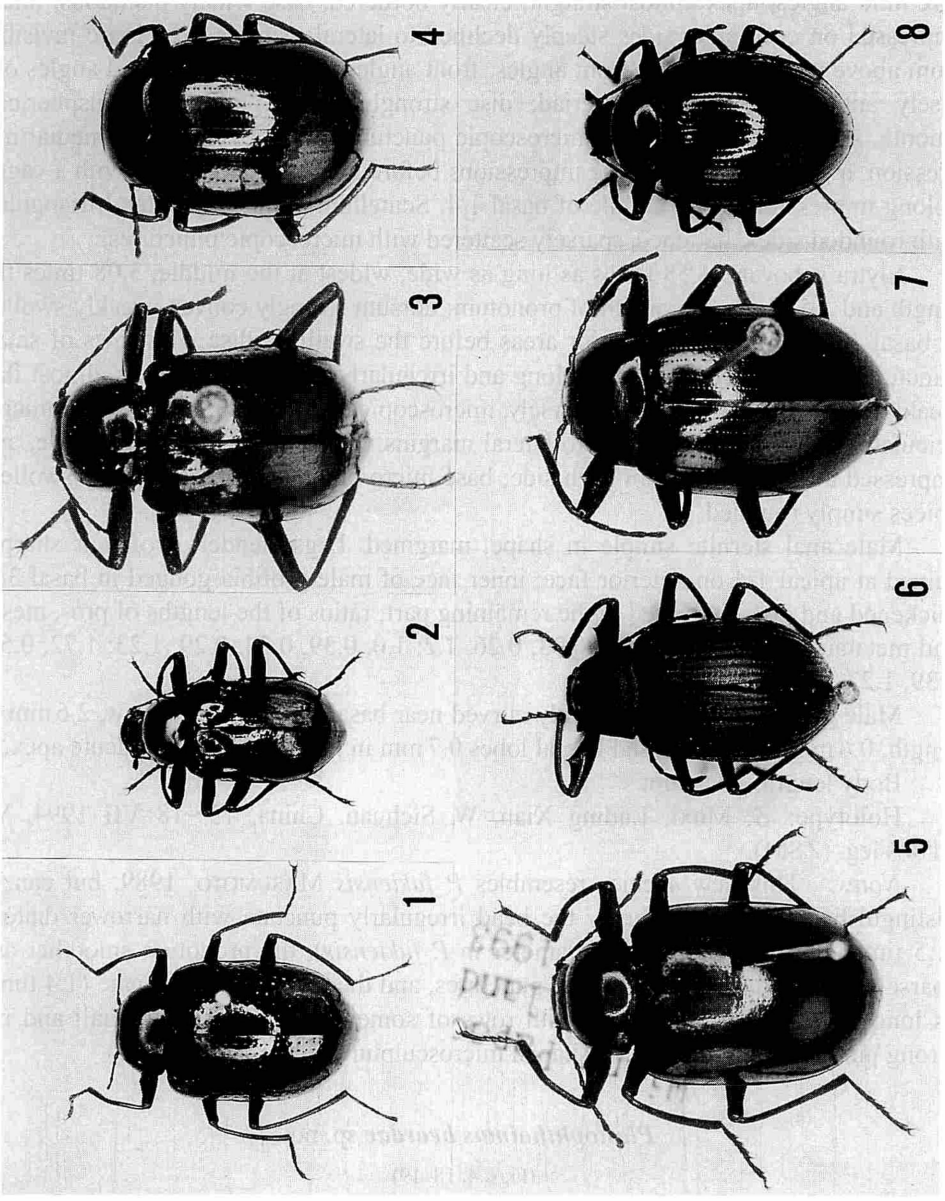
Plesiophthalmus sichuanicus sp. nov.

(Figs. 3, 16–17)

Piceous with slightly ferrous tinge, mouth parts and claws slightly brownish; dorsal surface strongly, somewhat vitreously shining, ventral surface somewhat alutaceous. Oblong-ovate, strongly convex above.

Head transversely elliptical in frontal view, micro-shagreened; clypeus transverse, closely punctate, depressed in basal part, bent downwards and truncate in front, frontoclypeal border widely arcuate and finely impressed; genae somewhat obliquely rhombical, frequently punctate, raised laterad, with lateral margins rounded; frons rather steeply inclined forwards, fairly closely punctate in anterior part, becoming sparser and medially impressed in posterior part, diatone 1.35 times the width of an eye diameter; vertex moderately raised though the major parts are beneath pronotum. Eyes somewhat transversely comma-shaped in dorsal view, gently, roundly convex laterad. Antennae

Figs. 1–8. Habitus. —— 1, *Plesiophthalmus birmanicus* sp. nov., holotype ♂; 2, *P. guizhouensis* sp. nov., holotype ♂; 3, *P. sichuanicus* sp. nov., holotype ♂; 4, *P. beardae* sp. nov., holotype ♂; 5, *P. sericidorsalis* sp. nov., holotype ♂; 6, *P. bremeri* sp. nov., holotype ♂; 7, *P. javaensis* sp. nov., holotype ♂; 8, *P. keralaensis* sp. nov., holotype ♂.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subfiliform, reaching the middle of elytra, ratio of the length of each segment from basal to apical: 0.57, 0.2, 1.28, 0.6, 0.75, 0.79, 0.71, 0.69, 0.64, 0.59, 0.8.

Pronotum quadrate, 1.33 times as wide as long, widest at apical 2/5, sinuous before hind angles; apex almost straight, clearly bordered; base widely bisinuous, finely impressed on each side; sides steeply declined to lateral margins, which are invisible from above in the parts near front angles; front angles subrectangular, hind angles obtusely angulate obliquely posteriad; disc strongly convex, almost hemispherical, smooth, sparsely scattered with microscopic punctures, with a very vague medial impression, a pair of vague oblique impressions before the middle, and also with a vague oblong impression at the middle of basal 1/4. Scutellum almost equilateral triangular, with rounded sides, flattened, sparsely scattered with microscopic punctures.

Elytra subovate, 1.58 times as long as wide, widest at the middle, 3.08 times the length and 1.58 times the width of pronotum; dorsum strongly convex, weakly swollen at basal 1/4, depressed in anterior areas before the swelling; disc with rows of small punctures, which are somewhat oblong and irregularly arranged; intervals almost flat, weakly micro-shagreened, very sparsely, microscopically punctate, very weakly microaciculate; sides steeply declined to lateral margins, which are visible from above, and impressed at basal 3/10 from each side; base micro-crenulate; humeri gently swollen; apices simply rounded.

Male anal sternite simple in shape, margined. Legs slender; profemur sharply spined at apical 1/4 on anterior face; inner face of male protibia gouged in basal 3/7, thickened and densely haired in the remaining part; ratios of the lengths of pro-, meso- and metatarsomeres: 0.59, 0.32, 0.33, 0.26, 1.2; 1.0, 0.39, 0.34, 0.29, 1.23; 1.72, 0.59, 0.39, 1.27.

Male genitalia fusiform, weakly curved near basal part in lateral view, 2.6 mm in length, 0.6 mm in width; fused lateral lobes 0.7 mm in length, with rather acute apex.

Body length: 10.5 mm.

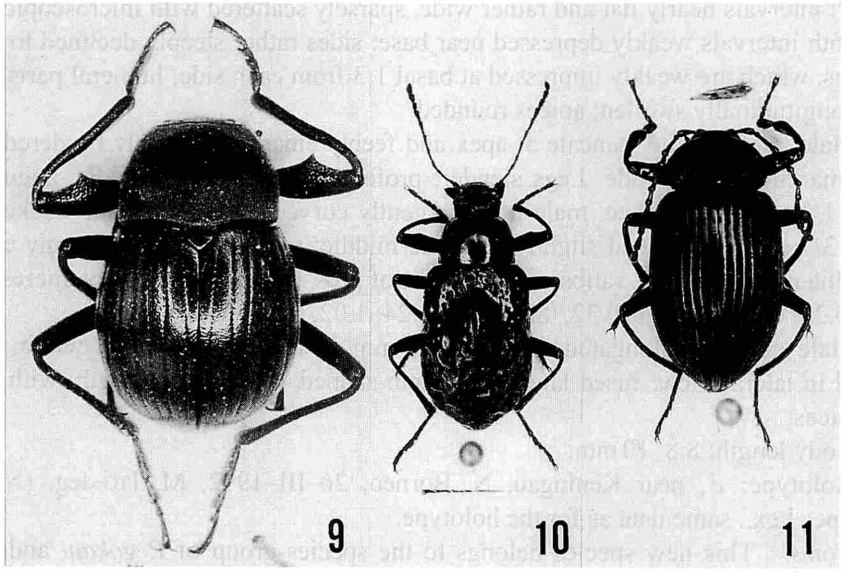
Holotype: ♂, Moxi, Luding Xian, W. Sichuan, China, 13~18–VII–1994, Vl. BENEŠ leg. (ZSM).

Notes. This new species resembles *P. fukiensis* MASUMOTO, 1989, but can be distinguished from the latter by the head irregularly punctate with narrower diatone (1.5 times the width of an eye diameter in *P. fukiensis*), the pronotum smoother and sparsely scattered with microscopic punctures, and the elytra more elongate (1.4 times as long as wide in *P. fukiensis*) with rows of somewhat oblong, very small and not strong punctures and differently shaped microsculpture on the intervals.

Plesiophthalmus beardae sp. nov.

(Figs. 4, 18–19)

Brownish black, head, pronotum, scutellum and elytra almost black with feeble coppery lustre, lateral portions of pronotum more coppery, head, pronotum, scutellum and elytra metallically shining, ventral surface alutaceous. Oblong-oval, strongly con-



Figs. 9–11. Habitus. —— 9, *Spinodietysus becvari* sp. nov., holotype ♂; 10, *Eumolpamarygmus becvari* sp. nov., holotype ♂; 11, *Becvaramarygmus atricolor* (Pic), comb. nov., ♂.

vex above.

Head somewhat transversely elliptical in dorsal view, though the clypeus is almost vertically projected, micro-shagreened and rather frequently punctate; clypeus somewhat transversely hexagonal, fronto-clypeal border very widely U-shaped, deeply sulcate; genae expanded, raised laterad, with outer margins rounded; frons somewhat bold T-shaped, almost vertical in major anterior part, sulcate along eyes, diatone 0.74 times the width of an eye diameter; vertex almost concealed beneath pronotum. Eyes rather large, roundly inlaid into head, rather strongly convex laterad. Antennae subfiliform, ratio of the length of each segment from basal to apical: 0.63, 0.2, 0.7, 0.54, 0.56, 0.55, 0.53, 0.51, 0.46, 0.43, 0.58.

Pronotum 1.85 times as wide as long, widest at basal 3/7; apex almost straight in dorsal view, convex and clearly bordered; base roundly produced in middle, very feebly sinuous on each side, not bordered; front angles rectangular though the corners are slightly hooked, hind angles obtuse though the corners are angulate; sides moderately declined to lateral margins, which are gently produced and bordered; disc somewhat transversely convex, frequently scattered with small punctures, with a medial impression near base. Scutellum subcordate with straight base, very slightly convex, sparsely scattered with microscopic punctures.

Elytra 1.27 times as long as wide, 3.2 times the length and 1.47 times the width of pronotum, widest at the middle; dorsum strongly convex, highest at basal 1/4; disc with rows of small round punctures, distance between them 1.5–3 times their own di-

ameter; intervals nearly flat and rather wide, sparsely scattered with microscopic punctures, 6th intervals weakly depressed near base; sides rather steeply declined to lateral margins, which are weakly impressed at basal 1/3 from each side; humeral parts somewhat longitudinally swollen; apices rounded.

Male anal sternite truncate at apex and feebly emarginate, finely bordered along outer margin on each side. Legs slender; profemur thickened in middle, angulate at apical 1/3 on anterior face; male protibia gently curved, with inner face thickened in apical 3/7, weakly gouged slightly after the middle; mesotibia gently, evenly curved; metatibia nearly straight, ratios of the lengths of pro-, meso- and metatarsomeres: 0.36, 0.28, 0.26, 0.3, 1.2; 0.61, 0.32, 0.28, 0.26, 1.24; 1.02, 0.48, 0.39, 1.28.

Male genitalia elongated fusiform, 2.6 mm in length, 0.6 mm in width, gently curved in lateral view; fused lateral lobes nib-shaped, 0.67 mm in length, with spatulate apices.

Body length: 8.8–10 mm.

Holotype: ♂, near Keningau, N. Borneo, 26–III–1992, M. ITO leg. (NSMT). Paratype: 1 ex., same data as for the holotype.

Notes. This new species belongs to the species-group of *P. gokani* and somewhat resembles *P. gokani* MASUMOTO, 1991, originally described from Borneo, but can be distinguished from the latter by the smaller and more ovate body, with male genitalia slenderer and spatulate at apices. This suggests its relationship with *P. shingoi* MASUMOTO, 1991, from Thailand, and *P. nakanei* MASUMOTO, 1991, from the Malay Peninsula, though the present new species is far smaller than those species.

Plesiophthalmus sericidorsalis sp. nov.

(Figs. 5, 20–21)

Piceous, with antennae, tarsi, mouth parts, etc., lighter in colour, pronotum and elytra with very feeble brownish tinge; head weakly shining, pronotum moderately so, and elytra rather noticeably sericeously shining, ventral surface gently, feebly alutaceously shining. Oblong-ovate, strongly convex above.

Head rather transversely elliptical in frontal view, rather closely, irregularly punctate, the punctures often fused with one another on frons; clypeus semicircular, nearly straight in front, fronto-clypeal border widely arcuate and finely impressed; genae strongly expanded, raised laterad, with outer margins roundly produced; frons rather narrow, steeply inclined forwards, diatone 0.2 times the width of transverse diameter of an eye; vertex almost concealed under pronotum. Eyes large, somewhat transversely comma-shaped in dorsal view, widely inlaid into head, remarkably convex laterad. Antennae slender, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.62, 0.2, 1.18, 0.38, 0.8, 0.73, 0.65, 0.63, 0.58, 0.62, 0.68.

Pronotum subtrapezoidal, 1.5 times as wide as long, widest at basal 1/3; apex very slightly emarginate in dorsal view, clearly grooved; base gently produced in middle, sinuous on each side, neither margined nor bordered; sides rather steeply declined

to lateral margins, which are gradually narrowed apicad and finely grooved; front angles obtuse though the corners are angulate, hind angles obtuse, though the corners are very slightly hooked; disc strongly convex, rather closely, finely punctate, with a faint impression at basal 1/6 in middle. Scutellum subcordate with sublinear base, very weakly depressed, and scattered with minute punctures.

Elytra 1.57 times as long as wide, 3.67 times the length and 1.37 times the width of pronotum; dorsum rather strongly convex, highest at basal 1/3; disc with rows of round minute punctures, which are sparsely set; intervals wide, not convex, very weakly micro-aciculate and sparsely scattered with microscopic punctures; sides steeply declined to lateral margins, which are slightly expanded laterad, weakly impressed at basal 1/3 from each side; base crenulate; humeri gently swollen; apices simply rounded.

Profemur noticeably thickened in middle, spined at apical 2/5 on anterior face; protibia remarkably curved, thickened in apical 3/7 of inner face; ratios of the lengths of pro-, meso- and metatarsomeres: 0.51, 0.29, 0.23, 0.21, 1.2; 0.8, 0.37, 0.29, 0.27, 1.22; 1.5, 0.5, 0.34, 1.24.

Male genitalia nearly fusiform, gently curved in lateral view, 3.6 mm in length, 0.68 mm in width; fused lateral lobes prolonged apicad, spatulate at apex, 1.24 mm in length.

Body length: 13–14 mm.

Holotype: ♂, Wiang Papao, Chiang Rai Prov., N. Thailand, 2–VI–1993, K. KUME leg. (NSMT). Paratypes: 2 exs., same data as for the holotype.

Notes. This new species resembles *P. thailandicus* MASUMOTO, 1990, from northern Thailand, but can be distinguished from the latter by the dorsal surface more sericeous, and the elytra with rows of remarkably smaller punctures.

Plesiophthalmus bremeri sp. nov.

(Figs. 6, 22–23)

Brownish black, elytra slightly lighter in colour, hairs on surfaces pale yellow; head, elytra and ventral surface somewhat alutaceous, pronotum weakly shining. Oblong-ovate, strongly convex above.

Head somewhat rounded in frontal view, micro-shagreened, closely and coarsely punctate, the punctures sometimes fused with one another and each with a bent hair; clypeus semicircular, oblique against frons, gently bent downwards and truncate at apex, fronto-clypeal border arcuate and impressed; genae oblique, remarkably raised, produced laterad; frons rather wide, weakly concave longitudinally, diatone about 0.9 times the width of an eye diameter; vertex almost concealed under pronotum. Eyes somewhat transversely comma-shaped in dorsal view. Antennae subfiliform, extending beyond the middle of elytra, ratio of the length of each segment from basal to apical: 0.7, 0.2, 1.38, 0.8, 1.06, 1.0, 0.98, 0.82, 0.78, 0.77, 0.99.

Pronotum subquadrate, 1.39 times as wide as long, widest at base; apex weakly,

widely emarginate and margined; base widely bisinuous, not margined, slightly emarginate opposite to scutellum; sides gently declined to lateral margins, which are finely ridged; front angles rectangular, hind angles slightly obtuse; disc moderately convex, closely, longitudinally sculptured, clothed with pily hairs. Scutellum almost equilateral triangular, though the sides are slightly rounded, finely rugoso-punctate and haired, very weakly concave in posterior part.

Elytra subelliptical, 1.5 times as long as wide, 3.43 times the length and 1.38 times the width of pronotum, widest at apical 3/7; dorsum strongly convex, highest at basal 1/3; disc punctate and grooved, the punctures very shallow and oblong, whose bottoms are deep and longitudinally elongate; intervals gently convex, very weakly micro-shagreened and micro-aciculate, scattered with microscopic punctures, each with a pily hair; sides steeply declined to lateral margins, which are visible from above, and weakly impressed at basal 4/9 from each side.

Male anal segment not modified. Legs slender; profemur sharply spined at apical 2/5 on anterior face; male protibia with inner face indistinctly thickened in apical 3/5; ratios of the lengths of pro-, meso- and metatarsomeres: 0.6, 0.38, 0.36, 0.33, 1.2; 0.59, 0.43, 0.39, 0.33,1.22; 1.23, 0.57, 0.38, 1.24.

Male genitalia elongate, 5.5 mm in length, 0.9 mm in width, curved in basal part, though the remaining part is almost straight in lateral view, with basal piece longitudinally ridged, constricted in middle; fused lateral lobes nib-shaped, 1 mm in length.

Body length: 16–17 mm.

Holotype: ♂, Soppong, Pai Distr., 1,800 m alt., Mae Hong Son Prov., N. Thailand, 1～8–V–1993, PACHOLÁTKO & DEMBICKÝ leg. (ZSM). Paratypes: 3 exs., same data as for the holotype; 1 ex., Laos, MOUHOT leg. (NHML).

Notes. This new species is easily distinguishable from the other known species of the genus *Plesiophthalmus* by the dorsal surface clothed with pily hairs, the profemur with a remarkably acute spine, and the inner face of male protibia only indistinctly thickened in the apical part. *Plesiophthalmus maculosus* (PIC, 1922), from Laos might be the nearest species in general appearance, but this new species possesses no maculation on the elytra.

Plesiophthalmus javaensis sp. nov.

(Figs. 7, 24–25)

Dark reddish brown, head, pronotum, apical parts of femora, tarsi, apices of mandibles, palpi, etc., darker in colour; head, pronotum and scutellum vitreously shining, elytra weakly sericeously shining, pro- and mesosterna, lateral parts of metasternum and abdomen alutaceous, major part in middle of metasternum moderately shining. Oblong-ovate, gently convex above.

Head transversely elliptical in frontal view, weakly convex in middle; clypeus transversely subrhombical, flattened, micro-shagreened, rather closely punctate, fronto-clypeal border widely straight in middle, obliquely bent in lateral parts, and reaching

outer margins; genae dilated outwards, rather sparsely, microscopically punctate, raised and rounded in marginal parts, somewhat triangularly bordered in inner parts; frons somewhat thickly I-shaped, sparsely, irregularly scattered with microscopic punctures, diatone about 0.7 times the width of an eye diameter; inner margins of eyes sulcate; vertex almost concealed beneath pronotum, weakly impressed at the middle. Eyes obliquely, roundly inlaid into head in dorsal view, the remaining parts beneath pronotum. Antennae subfiliform, reaching basal fourth of elytra; ratio of the length of each segment from basal to apcial: 0.58, 0.2, 0.8, 0.58, 0.7, 0.68, 0.76, 0.74, 0.72, 0.69, 0.74.

Pronotum subtrapezoidal, 1.52 times as wide as long, widest at base, gently narrowed from base to the middle, then rather remarkably so apicad; apex gently, evenly emarginate, clearly bordered, indistinctly impressed at the middle; base widely, gently bisinuous, slightly produced in middle, with a fine impression on each side close to base; sides gently inclined laterad, with lateral margins clearly bordered and visible from above; front angles subrectangular, hind angles obtusely angulate; disc moderately convex, rather frequently scattered with microscopic punctures. Scutellum triangular with sides slightly sinuous near base, weakly convex, scattered with microscopic punctures.

Elytra subelliptical, 1.57 times as long as wide, 3.3 times the length and 1.4 times the width of pronotum, widest at basal 2/5; dorsum strongly convex, highest at basal 1/4; disc with rows of small punctures, which are slightly ovate and set 1–3 times their own diameter apart from one another; intervals almost flat, weakly micro-shagreened, micro-aciculate, rather frequently scattered with microscopic punctures; sides moderately declined to lateral margins, which are clearly grooved; base micro-crenulate in middle; humeri weakly swollen; apices roundly produced.

Male anal sternite slightly truncate at apex, finely margined along outer margin on each side. Legs medium-sized; frontal face of protibia angulate at apical 1/3; inner (ventral) surface of male protibia gouged in basal 2/5, thickened and haired in apical half; inner surface of male mesotibia thickened in apical half; ratios of the lengths of pro-, meso- and metatarsomeres: 0.39, —, —, —, —; 0.6, 0.4, 0.27, 0.26, 1.26; 1.14, 0.34, 0.33, 1.28.

Male genitalia elongated fusiform, gently curved in lateral view, 3.9 mm in length, 0.78 mm in width; fused lateral lobes somewhat arrowhead-shaped, 1 mm in length, medially impressed in apical 3/5, remarkably becoming narrower in apical 2/3 than in basal 1/3, with lateral faces inversely serrate.

Body length: 12.5–15 mm.

Holotype: ♂, Ost-Java, Idjen, H. LUCJHT leg. (ZSM). Paratype: 1 ex., same data as for the holotype.

Notes. This is an isolated new species in the genus, but the pronotum somewhat resembles in shape those of the members of the *S. insignis* group.

Plesiophthalmus keralaensis sp. nov.

(Fig. 8, 26–27)

Piceous, apices of antennae, mouth parts, tibiae, etc., brownish; pronotum and elytra strongly, somewhat vitreously shining, head, legs, ventral surface (except for metasternum) rather alutaceous, metasternum moderately shining. Rather ovate, strongly convex above.

Head transversely elliptical in frontal view, micro-shagreened, closely punctate; clypeus semicircular, flattened in basal part, bent downwards and truncate in front, fronto-clypeal border arcuate and clearly impressed, the impression reaching outer margins; genae obliquely raised, with lateral margins rather obtuse; frons somewhat T-shaped, rather steeply inclined forwards, weakly depressed in posterior part of the area between eyes, diatone 1/4 times the width of an eye diameter; vertex concealed beneath pronotum. Eyes very large, somewhat transversely comma-shaped in dorsal view, broadly inlaid into head, noticeably broadly convex laterad. Antennae subfiliform, reaching the middle of elytra, ratio of the length of each segment from basal to apical: 0.6, 0.3, 1.5, 0.76, 1.24, 0.98, 0.82, 0.73, 0.67, 0.62, 0.7.

Pronotum transverse, 1.82 times as wide as long, widest slightly behind the middle; apex almost straight, finely though clearly bordered; base widely bisinuous, with a fine impression on each side; sides rather steeply declined to lateral margins, which are wholly visible from above; front angles obtuse though angulate at corners, hind angles obtuse; disc strongly, transversely convex, smooth, rather frequently scattered with microscopic punctures, with a very vague transverse impression at basal 1/4. Scutellum subcordate, flattened, sparsely with microscopic punctures.

Elytra subovate, 1.35 times as long as wide, widest at basal 1/3, 3.3 times the length and 1.54 times the width of pronotum; dorsum strongly convex, highest at basal 1/4; disc punctato-striate, the striae shallow, the punctures rounded, not so large but rather deep; intervals gently convex, rather frequently, microscopically punctate, very weakly micro-aciculate; sides gradually declined to lateral margins, which are gently expanded laterad and easily visible from above, and impressed at basal 1/3 from each side; base micro-crenulate in inner parts; humeri gently swollen; apices roundly produced.

Male anal sternite weakly truncate at apex, with outer margin bordered on each

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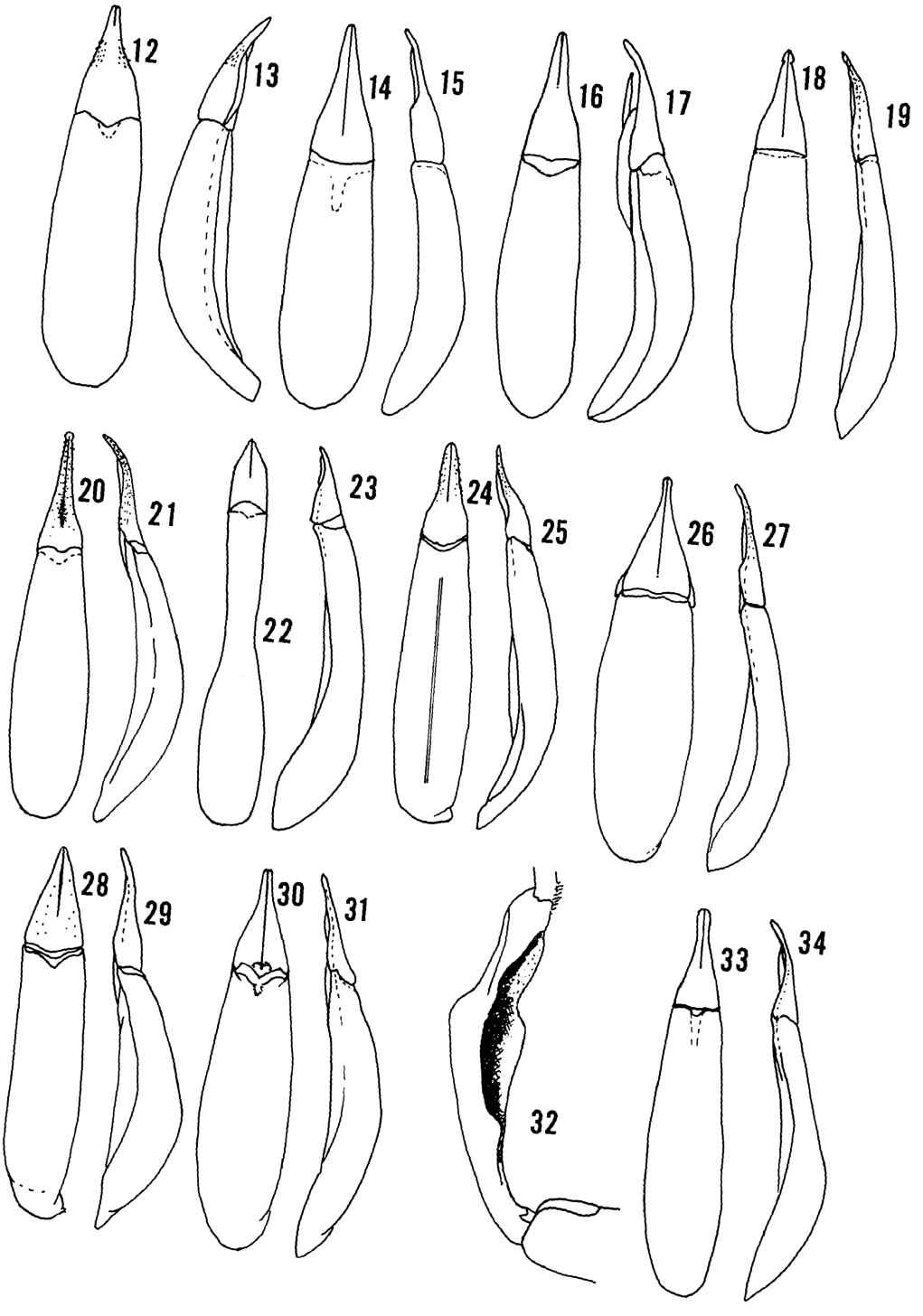
Figs. 12–34. Male genitalia (12–31, 33–34) and protibia (32). —— 12–13, *Plesiophthalmus birmanicus* sp. nov., dorsal view (12), and lateral view (13). —— 14–15, *P. guizhouensis* sp. nov., dorsal view (14), and lateral view (15). —— 16–17, *P. sichuanicus* sp. nov., dorsal view (16), and lateral view (17). —— 18–19, *P. beardae* sp. nov., dorsal view (18), and lateral view (19). —— 20–21, *P. sericidorsalis* sp. nov., dorsal view (20), and lateral view (21). —— 22–23, *P. bremeri* sp. nov., dorsal view (22), and lateral view (23). —— 24–25, *P. javaensis* sp. nov., dorsal view (24), and lateral view (25). —— 26–27, *P. keralaensis* sp. nov., drosal view (26), lateral view (27).—— 28–29, *Spinodietysus becvari* sp. nov., dorsal view (28), and lateral view (29). —— 30–31, *Eumolpamarygmus becvari* sp. nov., dorsal view (30), and lateral view (31). —— 32–34, *Becvaramarygmus atricolor* (PIC), comb. nov., protibia in dorsal view (32), male genitalia in dorsal view (33), and same in lateral view (34).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side. Legs a little stout; profemur thickened and obtusely angulate at apical 1/3 on anterior face; inner face of male protibia gouged slightly before the middle, thickened and densely haired in apical half; ratios of the lengths of pro-, meso- and metatarsomeres: 0.48, 0.28, 0.24, 0.26, 1.2; 0.79, 0.4, 0.37, 0.29, 1.21; 1.82, 0.52, 0.34, 1.22.

Male genitalia short fusiform, weakly curved in dorsal part, 4.3 mm in length, 1.2 mm in width; fused lateral lobes 1.2 mm in length, longitudinally impressed, with remarkably prolonged apex.

Body length: 14–16 mm.

Holotype: ♂, Kerala, S. India, IV–1993, S. PERYIAR leg. (ZSM). Paratype: 1 ex., same data as for the holotype.

Notes. This new species is so peculiar in the rather ovate outline of the body, that there is no related species ever known.

II. Genus ***Spinodietysus*** PIC, 1927

Spinodietysus becvari sp. nov.

(Figs. 9, 28–29)

Piceous, mouth parts, palpi, claws, etc., brownish, hairs on surfaces dark golden; dorsal surface gently shining, ventral surface somewhat alutaceous; each surface rather closely clothed with bent hairs. Ovate, strongly convex, constricted between fore and hind bodies.

Head transversely elliptical in frontal view, almost vertical, weekly convex in middle, rather closely, irregularly punctate, the punctures often fused with one another, each with a short bent hair; clypeus a little transverse, bent downwards in front, truncate at apex, fronto-clypeal border widely arcuate; genae oblique, produced antero-laterad; frons rather steeply inclined, diatone about 1.5 times the width of an eye diameter; vertex almost concealed beneath the prothorax. Eyes somewhat transversely comma-shaped in dorsal view, though the lateral parts are almost concealed beneath the pronotum, somewhat obliquely, roundly inlaid into head. Antennae subfiliform, reaching the middle of elytra, ratio of the length of each segment from basal to apical: 0.77, 0.25, 1.38, 0.79, 1.1, 0.92, 1.0, 0.8, 0.79, 0.7, 0.95.

Pronotum trapezoidal, gently narrowed apicad, 1.33 times as wide as long, widest at the middle; apex very slightly sinuous on each side in dorsal view, convex and rimmed; base finely bordered, weakly produced in middle, gently sinuous on each side; sides steeply declined to lateral margins, which are finely bordered; front angles rectangular; hind angles slightly obtuse; disc closely punctate, the punctures somewhat elongate and longitudinally fused with one another. Scutellum widely triangular, with base weakly produced, very feebly convex, almost smooth, scattered with small punctures in middle.

Elytra subovate, 1.22 times as long as wide, widest at basal 3/7, about twice the length and 1.3 times the width of pronotum; dorsum strongly convex, highest at basal

2/5; disc punctato-striate, the striae fine and shallow, the punctures small and rounded; intervals weakly convex, microscopically aciculate, rather closely punctate, each puncture with a fine bent hair; base weakly crenulate; humeri obtusely angulate; apices rounded.

Anal sternite finely bordered along apex, not modified even in male. Profemur acutely spined at apical 2/7; male protibia gently thickened in apical 4/7, with inner face densely haired; ratios of the lengths of pro-, meso- and metatarsomeres: 0.77, 0.56, 0.44, 0.33, 1.2; 0.89, 0.48, 0.49, 0.36, 1.25; 1.56, 0.78, 0.4, 1.27.

Male genitalia elongated fusiform, 3.6 mm in length, 0.65 mm in width, weakly curved in lateral view, with basal piece thickened in medial part in lateral view; fused lateral lobes somewhat equilateral triangular, 1.1 mm in length.

Body length: 11.5–13.5 mm.

Holotype: ♂, Ban Huai Po, 1,600–2,000 m alt., 19.19 N, 97.59 E, Mae Hong Son Prov., N. Thailand, 30–IV~4–V–1991, L. DEMBICKÝ leg. (NSMP). Paratypes: 2 exs., same data as for the holotpye; 1 ex., 17~23–V–1991, same locality and collector as for the holotype; 2 exs., Khun Yuan, 800 m alt., N. Thailand, 3–VII–1993, J. SCHNEIDER leg.; 2 exs., Ban Huai Po, 1,700 m alt., 24~30–VI–1993, J. SCHNEIDER leg.; 2 exs., Ban Huai Po, 1,600–2,000 m alt., 9~16–V–1991, J. HORÁK leg.; 1 ex., Ban Si Lang, Mae Hong Son Prov., 23~31–V–1991, J. HORÁK leg.; 1 ex., Pass nr. Soppong, 1,500 m alt., 19.27 N, 98.20 E, Mae Hong Son Prov., 7~10–V–1997, S. BEČVÁŘ leg.

Notes. This new species is a second member of the genus *Spinodietysus* and resembles *S. convexipennis* (PIC, 1927) from North Vietnam, but is easily distinguished from the latter by the body larger, more ovate, strongly convex and blackish, with dorsal surface more closely punctate, front angles of pronotum more produced, base of pronotum bisinuous, scutellum widely triangular, elytral striae clearer, and the male genitalia remarkably more elongate.

A genus whose members are similar in shape to the present genus occurs in Africa. A detailed study concerning comparison and relationship between these genera would be necessary in the future.

III. Genus ***Eumolpamarygmus*** PIC, 1923

Eumolpamarygmus becvari sp. nov.

(Figs. 10, 30–31)

Piceous, dorsal surface somewhat sericeously shining, head and lateral portions of pronotum with coppery lustre, ventral surface slightly brownish and alutaceous. Oblong-ovate, strongly convex above.

Head somewhat decagonal in frontal view, micro-shagreened, closely and unevenly punctate, with a weak medial impression in posterior part; clypeus somewhat transversely hexagonal, flattened in basal part, bent downwards in apical part, clothed with rather long hairs, fronto-clypeal border widely arcuate and impressed in middle;

genae somewhat obliquely rhombical, rather strongly raised, with obtuse outer margins; frons rather wide, irregularly impressed in middle, diatone about 1.6 times the width of an eye diameter; vertex gently convex though all the parts are almost concealed under pronotum. Eyes not very large, rather transverse in dorsal view, weakly convex laterad. Antennae subfiliform, extending beyond the middle of elytra, ratio of the length of each segment from basal to apical: 0.7, 0.2, 1.2, 0.6, 0.79, 0.76, 0.79, 0.7, 0.47, 0.49, 0.66.

Pronotum subquadrate, 1.47 times as wide as long, widest at the middle; apex almost straight, finely bordered; base very weakly produced in middle, slightly bisinuous, not margined but weakly impressed on each side close to base; sides steeply declined to lateral margins, which are finely bordered; front angles obtusely angulate; hind angles obtusely angulate with acute tips; disc strongly convex, rather smooth though micro-shagreened, scattered with microscopic punctures, each with a microscopic hair, with a weak longitudinal medial impression in anterior 2/3, and also with two or three pairs of impressions before the middle, at the middle and after the middle. Scutellum almost equilateral triangular, though the sides are slightly rounded, weakly convex above, micro-shagreened, sparsely scattered with microscopic punctures.

Elytra subelliptical, 1.5 times as long as wide, widest at apical 1/3 of elytra; dorsum strongly convex with a remarkable gibbosity at basal 1/3 of each elytron, depressed in the areas before the gibbosity, along sutural part in posterior 1/3 of elytra, and also in posterior halves of elytra at lateral portions; disc with rows of punctures, which are partly grooved, various in size and shape, rounded to elongate, and often form foveae; intervals more or less convex, micro-shagreened and micro-aciculate, scattered with microscopic punctures; sides steeply declined to lateral margins, which are almost invisible from above and rather remarkably produced laterad in apical 1/3; base micro-crenulate; humeri feebly swollen; apices gently, roundly produced.

Male anal segment without modification. Legs slender; profemur gently spined at apical 2/7 on anterior face; male protibia with inner face indistinctly thickened and densely haired in apical 3/5; ratios of the lengths of pro-, meso- and metatarsomeres: 0.48, 0.32, 0.3, 0.29, 1.2; 0.8, 0.48, 0.34, 0.27, 1.22; 1.72, 0.39, 0.38, 1.23.

Male genitalia fusiform, 2.6 mm in length, 0.6 mm in width, almost evenly curved in lateral view; fused lateral lobes 0.7 mm in length, with prolonged apex.

Body length: 10.7 mm.

Holotype: ♂, Heishui env., 35 km N. of Lijiang, Yunnan Prov., China, 28~30–VI–1994, B. SIŠKA & T. SPEVÁR leg. (NSMP).

Notes. This new species resembles *E. vietnamensis* MASUMOTO, 1989, but can be distinguished from the latter by the dorsal surface more shining, the pronotum obviously transverse, each elytron with a remarkable gibbosity, and the more slender legs.

IV. Genus ***Becvaramarygmus*** gen. nov.

PIC (1922) described *Dietysus atricolor* (Figs. 11, 32–34) from Laos. In his cata-

logue of the Tenebrionidae, GEBIEN (1943, p. 847) transferred the species to the genus *Amarygmus*. The male of this species possesses very peculiar features, probably overlooked by PIC, particularly in the shape of the antennae and protibiae, so that I am going to erect a new genus for it.

Becvaramarygmus gen. nov.

Type species: *Dietysus atricolor* PIC, 1922.

Oblong-ovate, strongly convex dorsad, medium-sized (14–15 mm) for a member of Amarygmini. Head almost vertical against prothorax in repose. Antennae with 3rd to 6th segments noticeably thickened near each apical part. Pronotum strongly convex transversely; each margin finely bordered. Scutellum triangular. Elytra oblong-ovate, strongly striate. Legs medium-sized; male protibia thickened towards apical third, then rather abruptly narrowed, the narrow part impressed from above, ventral surface hollowed, the upper side lobed inwards at apical 1/3 and the lower side widely lobed inwards at basal 1/4; meso- and metatibiae curved inwards. Male genitalia elongate fusiform, with comparatively short fused lateral lobes.

Becvaramarygmus atricolor (PIC, 1922), comb. nov.

Dietysus atricolor PIC, 1922, Bull. Soc. ent. Fr., **1922**: 304.

Distribution. Laos.

Specimens examined. 3 exs. (labeled "types" by PIC in MNHNP); 9 exs. (col. BEČVÁŘ and NHML).

要　　約

益本仁雄：キマワリ属（*Plesiophthalmus*）とその近縁属についての追加研究（その１）．——1988–1991年に発表したキマワリ属（*Plesiophthalmus*）と近縁属に関して引き続いて研究を行っていたが，今回その第1回として，東アジア産の10種を新種記載した．すなわち，*Plesiophthalmus birmanicus* sp. nov., *P. guizhouensis* sp. nov., *P. sichuanicus* sp. nov., *P. beardae* sp. nov., *P. sericidorsalis* sp. nov., *P. bremeri* sp. nov., *P. javaensis* sp. nov., *P. keralaensis* sp. nov., *Spinodietysus becvari* sp. nov., *Eumolpamarygmus becvari* sp. nov.である．さらに，*Dietysus atricolor* PICがきわめて特徴のある外部形態（とくに雄の前脛節と触角）をしているので，新属*Becvaramarygmus* gen. nov. をたて，*B. atricolor* (PIC), comb. nov.とした．

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Elytra, *Tokyo*, **27** (2): 370, November 13, 1999

New Records of Staphylinid Beetles (Coleoptera) from the Island of Zamami-jima, the Ryukyus

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So far as known to me, no staphylinid beetles have hitherto been reported from the Island of Zamami-jima of the Ryukyus.

Through the courtesy of Dr. Hitoo ÔHIRA, Okazaki, three species of staphylinid beetles obtained by himself on May 4–5, 1999, at Ama on the island were given to me for study. All the species are new to the fauna of the island, as recorded below. I thank Dr. H. ÔHIRA for his kindness in giving me the specimens.

1. *Paederus fuscipes* CURTIS, 1 ♀.
2. *Philonthus lewisius* SHARP, 1 ♂, 10 ♀♀.
3. *Philonthus variipennis* KRAATZ, 1 ♂, 2 ♀♀.

Elytra, Tokyo, **27** (2): 371–380, November 13, 1999

A Review of the Genus *Cyclonesus* (Coleoptera, Tenebrionidae, Cnodalonini)

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Abstract The tenebrionid genus *Cyclonesus* FAIRMAIRE is revised. A new species, *C. sculpturalis* sp. nov., is described. *Cyclonesus dohertyi* PIC and *C. mucronatus* PIC are synonymized with *C. parvicollis* FAIRMAIRE. The lecto- and paralectotypes of *C. viridipennis* PIC are newly designated. Redescriptions of known species and a key to them are provided.

Key words: Tenebrionidae, *Cyclonesus*, revision, new species, synonym, Southeast Asia.

The genus *Cyclonesus* was established by FAIRMAIRE (1896) based on the species *Cyclonesus parvicollis* FAIRMAIRE from Sumatra. After that, PIC (1922) added to this genus three species, *C. dohertyi*, *C. mucronatus* and *C. viridipennis*, from Borneo and Malacca. Recent studies of this group mainly based on the collections in the Muséum national d'Histoire naturelle, Paris led me to the following conclusion: an undetermined species from Sumatra was a new species by the uniqueness of elytral microsculpture; *Cyclonesus dohertyi* PIC was actually the male of *Cyclonesus parvicollis* FAIRMAIRE; and *Cyclonesus mucronatus* PIC was the female of *Cyclonesus parvicollis* FAIRMAIRE.

The abbreviations and terminology employed herein are as follows: IE – interocular distance; TD – transverse diameter of an eye in dorsal aspect; LA – relative lengths of antennal segments from base to apex; WA – relative widths of antennal segments from base to apex; PL – length of pronotum, measured along midline; PB – width of pronotal base; PW – width of pronotum; EW – width of elytra; EL – length of elytra; LM – relative lengths of metatarsal segments from base to apex; Mesosternal ridge – the ridge surrounding the excavation of mesosternum; MNHN – Muséum National d'Histoire Naturelle, Paris; PCM – collection of Dr. Kimio MASUMOTO, Yokohama; PCS – collection of Mr. Taichi SHIBATA, Hyôgo.

Genus ***Cyclonesus*** FAIRMAIRE, 1896

Cyclonesus FAIRMAIRE, 1896, Notes Leyd. Mus., **18**: 104 (type species: *C. parvicollis*). —— GEBIEN, 1941, Mitt. münchn. ent. Ges., **31**: 1143 (702).

Diagnosis. It is not easy to properly define *Cyclonesus*, since there is no pronounced peculiarity.

The body shape of this genus is very peculiar, but most of the characteristics mentioned in the original description are common to the genus *Euhemicera* ANDO, 1996. The elytral mucrones of the female (FAIRMAIRE, 1896) and the strongly bent mesotibiae of the male are not proved to be diagnostic of this genus, but are restricted only to the type species. The salient features of strongly convex and hemispherical body and extremely broadened elytral epipleura are scarcely seen in the species of the genera *Hemicera* and *Euhemicera*.

After all, the characteristics of *Cyclonesus* are barely defined as follows: elytra strongly convex, almost as long as wide and distinctly wider than pronotum; epipleura much broadened, and abdominal sternites extremely short. The character state of unbordered pronotal base is common with *Hemicera*, *Nanohemicera* and *Euhemicera*. Strikingly, the male genitalia suggest its closer affinity to *Tetraphyllus* (*Addia*-group).

In his original description, FAIRMAIRE noticed about the type "Hab. Sumatra orient.: Deli (Schagen van Leeuwen),—Un seul exemplaire du Musée Leyde." I was unable to find out the type from "Sumatra orient." in the Leyden Museum. On the other hand, a male type with FAIRMAIRE's handwriting label is preserved in MNHN, but is collected from Malaysia.

Key to the Species of the Genus *Cyclonesus*

1. Apex of each elytron with a distinct mucro in female; mesotibiae in male strongly adunc. Sumatra, Malaysia, Borneo. Length 9.5–11.0 mm..... *C. parvicollis* FAIRMAIRE
— Apex of each elytron devoid of mucro in female; male unknown..... 2
2. Body frosted, covered with sericeous tinge, upper surface provided with fine isodiametric microsculpture. Sumatra. Length 7.7 mm. ..... *C. sculpturalis* sp. nov.
— Body feebly shiny, devoid of microsculpture at least on elytra. Borneo. Length 8.0–8.1 mm..... *C. viridipennis* PIC

Cyclonesus parvicollis FAIRMAIRE, 1896

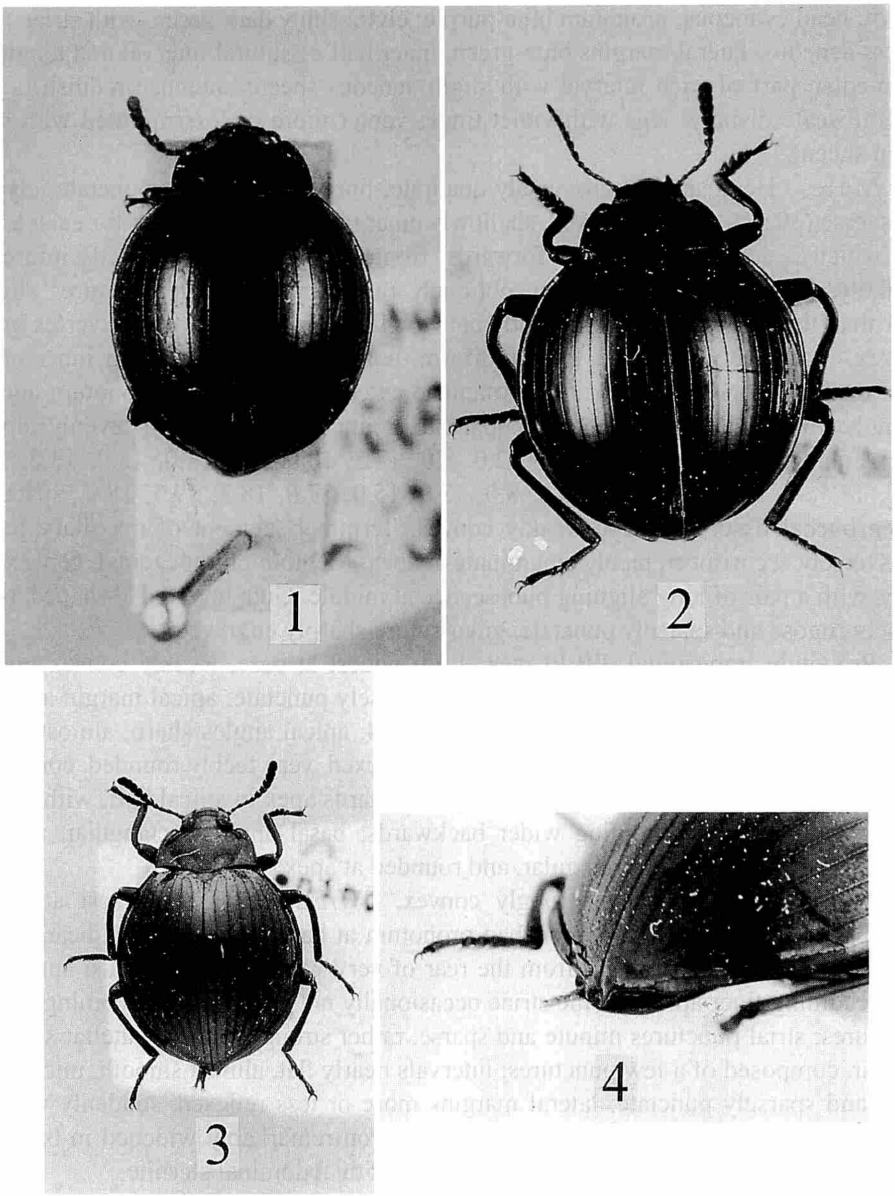
(Figs. 1–12)

Cyclonesus parvicollis FAIRMAIRE, 1896, 105 (type area: Sumatra). —— GEBIEN, 1941, 1143 (702). Type depository: MNHN.

Cyclonesus dohertyi PIC, 1922, 21 (type area: Malacca). —— GEBIEN, 1941, 1143 (702). Type depository: MNHN. [*Syn. nov.*]

Cyclonesus mucronatus PIC, 1922, 21 (type area: Borneo). —— GEBIEN, 1941, 1143 (702). Type depository: MNHN. [*Syn. nov.*]

General. Body hemispherical, about 1.16–1.24 times as long as wide, and lustrous; pronotum remarkably small in contrast to large elytra. Colour dark reddish



Figs. 1–4. *Cyclonesus parvicollis* FAIRMAIRE; 1, Type ♂, deposited in MNHN; 2, male specimen from Malaysia; 3, female specimen from N. Borneo; 4, elytral apices in ♀.

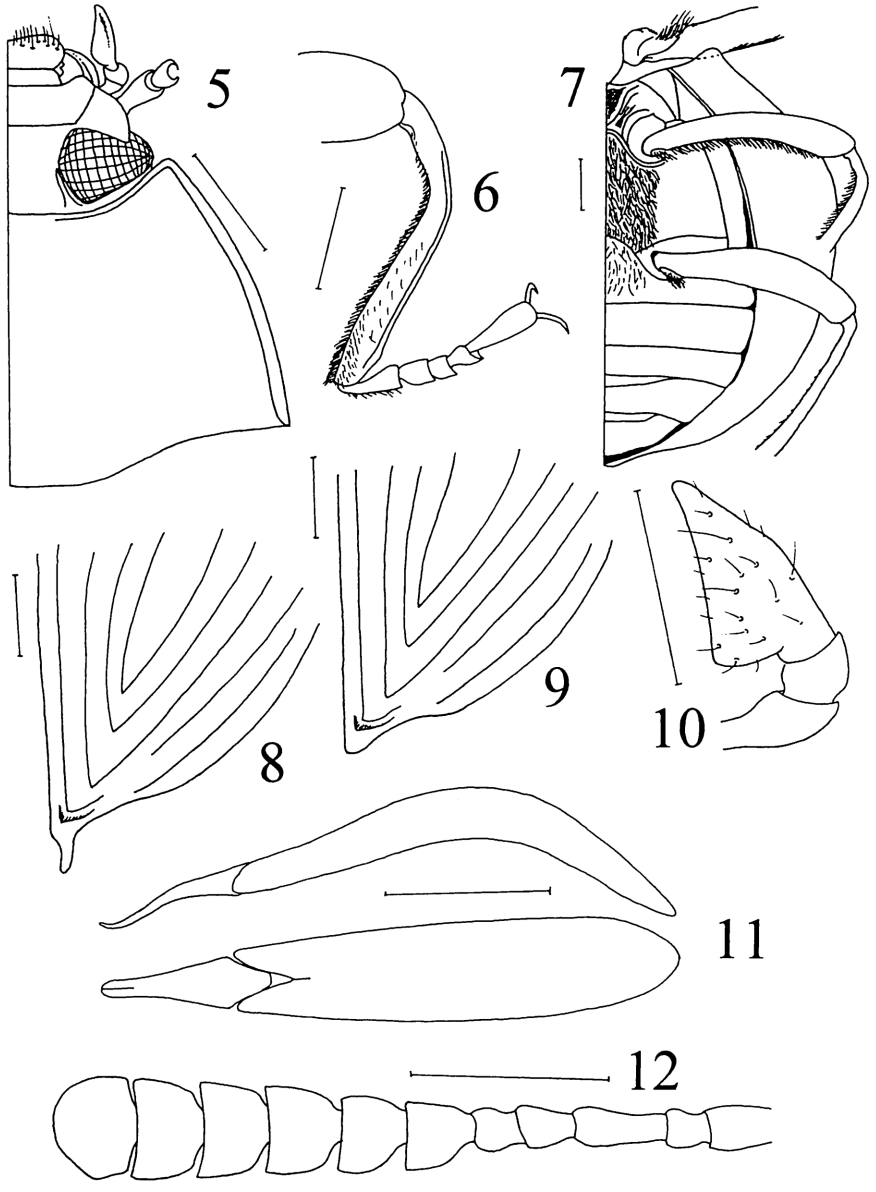
brown; head cyaneous; pronotum blue-purple; elytra shiny dark green, with striae more or less aeneous, lateral margins blue-green, inner half of sutural interval and longitudinal median part of each interval with slight aeneous sheen; antennae reddish brown, and infuscate distally; legs with violet tinge; venter more or less mingled with blue-green sheen.

Male. Head small, transversely quadrate, finely and sparsely punctate; clypeus transverse (30 : 7), slightly convex, shallowly emarginate at apex except for each lateral 1/6, which is arcuately produced forwards; fronto-clypeal suture distinctly impressed medially, finely so laterally; genae obliquely raised laterad, with punctures slightly finer than the rest of head; frons gently convex, IE/TD=ca. 1.02 to 1.07; vertex gently convex, moderately punctate. Eyes reniform, comparatively large, with inner ocular sulci distinct on posterior portions. Antennae extending to base of pronotum and not strongly clubbed; 11th segment subquadrate, rounded in basal half, evenly tapered apicad, and truncate at apex; LA=12.0, 8.0, 17.5, 10.0, 8.0, 13.0, 12.0, 13.5, 12.0, 12.0, 15.5; WA=8.5, 7.3, 7.5, 8.0, 8.0, 13.0, 15.0, 17.0, 18.3, 19.5, 18.0. Space between buccal fissure and eye weakly convex. Terminal segment of maxillary palpus transversely securiform, feebly emarginate at apex. Mentum obtrapezoidal, convex apically, with a pair of long aligning pubescence at middle. Gula inverted V-shaped, transversely rugose and sparsely punctate; gular suture sharply engraved.

Pronotum trapezoidal, PB/PL=ca. 1.58, widest at base, weakly convex on disc but slightly depressed at base, minutely and sparsely punctate; apical margin arcuately emarginate, narrowly bordered in each lateral 1/4; apical angles sharp, almost rectangular and produced forwards; lateral margins reflexed, very feebly rounded, convergent in basal half, then further strongly convergent towards apex in apical half, with borders distinct and narrow, becoming wider backwards; basal angles rectangular, not produced. Scutellum smooth, triangular, and rounded at apex.

Elytra wholly rounded, strongly convex, EW/EL=ca. 1.01, widest at middle (EW/PB=1.96), and a little wider than pronotum at base; elytral striae linear, narrow but deep, 6th to 8th extending from the rear of very weak humeral callus, and gradually becoming finer apicad, some striae occasionally not sulcate, but becoming rows of punctures; strial punctures minute and sparse, rather strong at base; scutellar striole irregular, composed of a few punctures; intervals nearly flat, almost smooth, microscopically and sparsely punctate; lateral margins more or less reflexed, suddenly vanished before strongly emarginate apex; elytral epipleuron remarkably widened in basal 5/8, irregularly depressed, extending to the middle of 5th abdominal sternite.

Prosternum with apical margin acute and a little produced downwards at middle; prosternal process coarse, sparsely pubescent, flattened between coxae. Mesosternal V-shaped ridge weakly raised, continuing basad onto rounded and obliquely declivous inflexed portions. Metasternum sparsely and obscurely punctulate, weakly and shallowly concave at middle, where hairs are dense and recumbent. Abdominal sternites short, depressed, weakly convex along midline, sparsely punctulate, longitudinally rugose sublaterally except for 5th; 1st sternite strongly bordered at base, with sparse recum-



Figs. 5–12. *Cyclonesus parvicollis* FAIRMAIRE. —— 5, Head and pronotum in ♂; 6, mesotibia in ♂; 7, venter of hind body in ♂; 8, elytral apex in ♀; 9, elytral apex in ♂; 10, maxillary palpus; 11, male genitalia, lateral view (upper) and dorsal view (below); 12, antenna. (Scales: 1 mm for Figs. 5–9 and 11–12, 0.5 mm for Fig. 10.)

bent hairs medially; 4th membranous in median half. Male genitalia fusiform; parameres with apices spatulate and slightly reflexed in dorsal view.

Legs robust; trochanter with a bunch of piles; femora long, profemur slightly dilated apicad, with short recumbent pubescence on posterior margin near trochanter and postero-ventral side, posterior margin of mesofemur shallowly emarginate and densely decorated with long recumbent hairs in basal 5/6, anterior margin of metafemur abruptly divergent from base to middle; pro- and mesotibiae flattened, protibia incurved at basal 1/5, mesotibia strongly adunc at basal 1/3, with two rows of long pubescence along inner margin, dorsal margin of metatibia with short pubescence in apical half along inner margin; LM=20.0, 6.0, 5.0, 19.0.

Female. Body darker than in male; head and pronotum more or less blue-purple, with brassy lustre; elytra dark green, and covered throughout with aeneous sheen, lateral margin aeneous; legs metallic blue-purple; punctures on head denser; frons a little more strongly convex; gular suture parallel-sided; space between buccal fissure and eye nearly flat; pronotum with the elevation of lateral borders weaker; punctures on elytral striae more distinct, elytral apices with a pair of sharp lyrate apiculi, which are directed downwards; apical margin of prosternum more acute at middle; metasternum and 1st abdominal sternite devoid of any pubescence, 5th sternite more strongly sinuous at sides; posterior margin of mesofemur neither pubescent nor emarginate anywhere, mesotibia not adunc and devoid of the rows of pubescence, LM=15.0, 5.5, 4.0, 16.5.

Length: 9.5–11.0 mm; width: 6.5–8.5 mm.

Type examined. 1♂, Lenggong, Malaysia (MNHN, Type! I was unable to find the type specimen labeled Sumatra).

Specimens examined. 1♂, Lenggong, Malaysia, 26–V–1975, Y. KIYOYAMA leg. (PCS); 1♂, 2♀♀, Near Keningau, Sabah, N. Borneo, 30–III–1988, M. ITOH leg. (PCM); 1♂, Malacca (type of *C. dohertyi* PIC, MNHN); 1♀, Borneo (type of *C. mucronatus* PIC, MNHN); 2 exs., Pontianak, Bornéo Occ., 1898 (MNHN); 2 exs., ditto, 1900 (MNHN); 6 exs., Pelawan besar, Est Bornéo, 1937, M. E. WALSH leg. (MNHN).

Distribution. Sumatra, Malay Peninsula, Borneo.

Cyclonesus viridipennis PIC, 1922

(Figs. 13–14)

Cyclonesus viridipennis PIC, 1922, 21 (type area: Borneo). —— GEBIEN, 1941, 1143 (702). Type depository: MNHN.

Redescription. Female. Body nearly hemispherical, a little longer than in the preceding species, about 1.33–1.35 times as long as wide, distinctly convex and feebly lustrous above; elytra distinctly larger and wider than pronotum. Colour dark reddish brown to reddish brown; head and pronotum coppery; elytra emerald-green, with strong purple sheen except for strial lines under certain direction of light; antennae dark reddish brown; venter and legs with slight violet and/or brassy-blue sheen.

Head trapezoidal, weakly convex, sparsely and irregularly punctate, interspace among the punctures very smooth; clypeus well-developed, weakly convex in middle, slightly emarginate at apex in median 5/6; fronto-clypeal suture hardly impressed; genae not strongly tumescent; frons slightly or weakly convex, IE/TD=ca. 1.33, devoid of inner ocular sulci; occiput with rugulose derma among punctures. Antennae short, not reaching base of pronotum; 11th segment trapezoidal; LA=8.0, 4.0, 8.0, 7.0, 5.0, 6.0, 6.0, 6.5, 6.4, 6.5, 11.0; WA=5.8, 4.8, 4.9, 5.4, 6.0, 9.0, 11.0, 13.0, 13.0, 14.0, 13.0. Space between buccal fissure and eye broad, gently convex, with an excavation of antennal reception at the innermost portion. Terminal segment of maxillary palpus securiform. Mentum obtrapezoidal, longer than wide, with long pubescence. Gula cuneate, with dense and transverse microscopical lines.

Pronotum trapezoidal, PB/PL=ca. 2.0, widest at base, weakly convex medially, and hardly sulcate along lateral margins; punctures minute and sparse, rather weakly impressed, more minute than those on head, and becoming smaller towards marginal portions; apical margin distinctly emarginate though nearly straight in middle, very narrowly bordered except for median 1/3; apical angles acute, produced forwards; lateral margins gently reflexed and moderately bordered, roundly convergent to before middle, thence evenly convergent to apex; basal angles rectangular, not produced, just fitting to the sulci of elytral lateral margins. Scutellum as long as wide, nearly smooth with some microscopical punctures.

Elytra rounded, strongly convex, strongly dilated backwards from base, widest at middle, EL/EW=1.02, with striae narrow, distinctly engraved, becoming gradually shallower posteriad and rudimentary on apical portion, 6th to 8th striae not reaching humeral callus; strial punctures distinct, slightly lenticular in form, rather dense, becoming sparser apically, 6th and 7th striae terminating at the summit of humeral callus; intervals broad, nearly flat, feebly convex on 8th and 9th, microscopically and sparsely punctate; humeral callus moderately swollen; scutellar striole short and not striate; elytral epipleuron smooth, depressed, very broad behind base (nearly twice as wide as episternum beside epipleuron), distinctly tapered posteriorly.

Prosternum moderately raised in middle, very narrowly bordered at apex, with a minute apico-median stub, which is directed downwards; prosternal process cuneiform, unbordered, dilated posteriorly and abruptly narrowed from posterior portion of coxae to acute apex, with hair-bearing punctures (hairs recumbent). Mesosternal V-shaped ridge very weakly raised, sparsely pubescent, continuing basad onto roundly declivous inflexed portions. Metasternum short, sparsely punctate and rugulose laterally, with fine recumbent hairs restricted in median 1/3; process between mesocoxae trapezoidal. Abdominal sternites short and much transverse, distinctly depressed laterad on 3rd to 5th sternites, microscopically punctate; 4th feebly covered with isodiametric microsculpture.

Legs short; trochanter with some short pubescence; femora extending beyond lateral margins of elytra, posterior margin of mesofemora with very short hairs basally; tibiae short, hardly ancipital along outer margin; each segment of protarsi very short

and compact, metatarsi with 3rd segment as long as but narrower than 2nd, LM=8.0, 3.0, 3.0, 12.0.

Male. Unknown.

Length: 8.0–8.1 mm; width: 6.0–6.4 mm.

Type examined. Lectotype: ♀, Borneo holl. [printed on white square label] / type [hand writing by pencil on sepia small square label] / TYPE [printed on small and transverse red square label] / *Cyclonesus viridipennis* n. sp. [handwriting by pencil on sepia and thin square label] / Muséum Paris / coll. M. Pic [printed by black ink on white square label] / Lectotype [printed] / *Cyclonesus viridipennis* Pic / Design. K. ANDO, 1994 [handwriting by black ink on transverse red square label and surrounded by black printed marginal line]. Paralectotype: 1♀, Borneo holl. [printed on white square label] / type [handwriting by pencil on sepia small square label] / TYPE [printed on small and transverse red square label] / *Cyclonesus viridipennis* Pic [handwriting by pencil on sepia and thin square label] / Muséum Paris / coll. M. Pic [printed by black ink on white square label] / Paralectotype [printed] / *Cyclonesus viridipennis* PIC / Design. K. ANDO, 1994 [handwriting by black ink on transverse red square label and surrounded by black printed marginal line]. All the types are deposited in MNHN.

Distribution. Borneo.

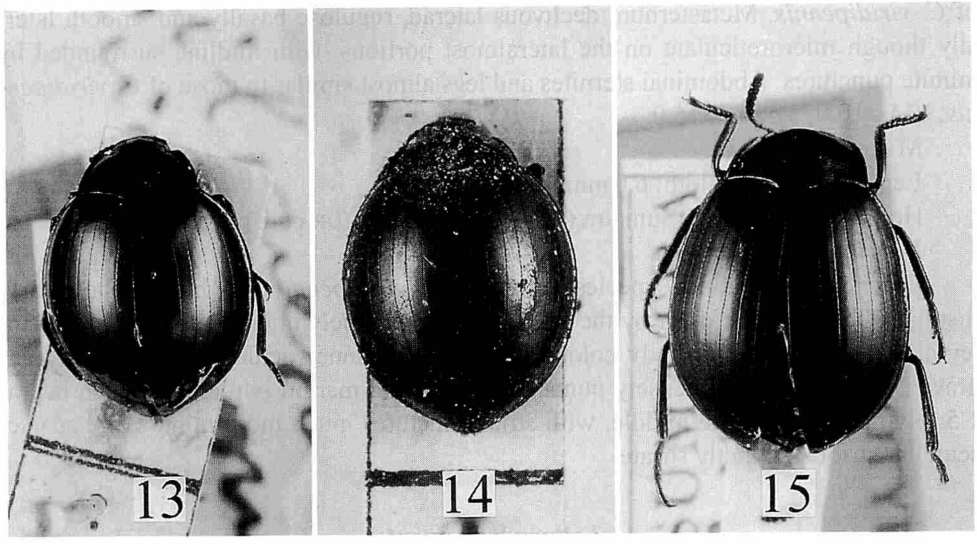
Diagnosis. This species is closely allied to *C. parvicollis* FAIRMAIRE, but distinctly different from the latter in the following points: punctures on the head finer; outer margins of tibiae hardly ancipital; body smaller; apical angles of pronotum more obtuse; elytral striae weaker and becoming vestigial in apical area, elytral apex in female devoid of acuminate hook.

Cyclonesus sculpturalis sp. nov.

(Fig. 15)

Female. Hemispherical, smaller and slightly sharper at apices of elytra than in *C. parvicollis* FAIRMAIRE, covered with feeble sericeous lustre. Colour black; head green; pronotum purple medially and blue-green laterally with somewhat brassy sheen; elytron sericeous dull-green, with lateral margin lustrous metallic green; venter dark reddish brown with slight green or blue sheen; legs reddish brown, with slight blue sheen; antennae infuscate.

Head broadened; clypeus short, weakly convex, minutely punctate, truncate at apex; labrum barely visible; genae triangular, feebly tumescent laterad, gently rounded at sides just in front of eyes, linearly convergent towards apices in apical 2/3, with punctures sparse, similar in size to those on clypeus but sparser; frons broadened, gently convex, much more sparsely punctate than on clypeus, with fine isodiametric microsculpture, IE/TD=ca. 1.40; inner ocular sulci sharp and deep posteriorly. Antennae short, extending a little beyond middle of pronotum, densely pubescent in distal 7 segments; 7th to 10th segments much produced inwards than outwards; 11th oval, as long as wide; LA=9.0, 7.0, 10.0, 7.0, 6.0, 7.0, 8.0, 8.0, 8.5, 9.0, 13.0; WA=6.5, 6.0, 6.0,



Figs. 13–15. Habitus. —— 13–14. *Cyclonesus viridipennis* Pic; lectotype, ♀ (13); paralectotype, ♀ (14). —— 15. *Cyclonesus sculpturalis* sp. nov., holotype, ♀.

6.5, 7.0, 10.0, 11.0, 12.5, 14.0, 14.0, 13.0. Terminal segment of maxillary palpus uniformly securiform. Mentum U-shaped, steeply sloping towards base, shallowly emarginate at apex, with a pair of long aligning pubescence on each side of the middle. Submentum pentagonal, parallel-sided, with a few punctures.

Pronotum trapezoidal, transverse, PB/PL=ca. 2.0, widest at base; disc convex, strongly so in apical half, with punctures minute and rather dense, larger than those on frons, space among punctures covered with fine isodiametric microsculpture; apical margin roundly emarginate, feebly bordered in each lateral 1/5; apical angles nearly rectangular but the corners rounded, slightly produced forwards; lateral margins very weakly, rather evenly convergent from base to apex, somewhat sinuous before base, with borders distinct, elevated throughout; basal angles acute.

Elytra oval, rather strongly convex, widest before middle, EL/EW=ca. 1.08, devoid of any apical mucrones, with striae strongly impressed, becoming gradually shallower and finer towards apices, 7th and 8th not reaching humeral callus; strial punctures minute, visible, almost sparse, and much sparser apically; intervals flat, sparsely punctate, with fine isodiametric microsculpture; humeral callus very weakly swollen; scutellar striole distinctly engraved; elytral epipleuron depressed, extending to base of 5th abdominal sternite, not so broadened along metepisterna as in *C. parvicollis*.

Prosternum roundly emarginate at apex, with a sharp apico-median stub produced downwards; prosternal process horizontal, convex, slightly dilated backwards, and abruptly narrowed before apex, with two longitudinal, shallow grooves parallel to each other. Mesosternal V-shaped ridge comparatively small, weakly raised, coarsened by vermiculate derma, with sparse and long pubescence, unedged anteriorly in the manner

of *C. viridipennis*. Metasternum declivous laterad, rugulose basally and smooth laterally though microreticulate on the lateralmost portions, with midline surrounded by minute punctures. Abdominal sternites and legs almost similar to those of *C. viridipennis*; LM=10.0, 5.5, 4.5, 15.0.

Male. Unknown.

Length: 7.7 mm; width: 6.0 mm.

Holotype: ♀, Médan, Sumatra (MNHN: R. OBERTHÜR coll.).

Distribution. Sumatra.

Diagnosis. This new species resembles *C. viridipennis* PIC, but can be clearly distinguished from the latter by the following points: finely microsculptured elytral intervals; slightly different body colour; IE/TD=1.40; inner ocular sulci distinctly engraved; pronotum more densely punctate, with apical margin bordered in each lateral 1/5; elytra widest before middle, with strial punctures much more minute and sparse; scutellar striole distinctly striate.

Acknowledgements

I wish to express my hearty thanks to Assoc. Prof. Masahiro SAKAI, College of Agriculture, Ehime University, Matsuyama, for his critical reading of the manuscript. My special thanks are due to Dr. Claude GIRARD, Muséum National d'Histoire Naturelle, Paris (MNHN), Dr. J. KRIKKEN, National Natuurhistorisch Museum, Leiden, Dr. P. KUIJTEN, Leyden Univ., Dr. Kimio MASUMOTO, Otsuma Women's University and Mr. Taichi SHIBATA, Hyôgo Pref., for their permission to make use of tenebrionid specimens deposited in their institutes. I am also greatly indebted to Prof. Nobuo OHBAYASHI, College of Agriculture, Ehime Univ., and Miss Patsy MOK, Hong Kong, for their kind help in the course of this study.

要　約

安藤清志：*Cyclonesus* 属の再検討．——東南アジア固有の *Cyclonesus* 属について検討を行った．既知種の再記載を行い，あわせて *C. viridipennis* PIC に近縁の種を，体表面を覆う微細構造などの相違をもとに新種と認め，*C. sculpturalis* と命名し記載を行った．既知種のうち，PIC (1922) が記載した2種，*C. dohertyi* と *C. mucronatus* を FAIRMAIRE が記載した *C. parvicollis* の下位同物異名として取り扱った．

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Elytra, *Tokyo*, **27** (2): 381–385, November 13, 1999

A New Species of *Dacne* (Coleoptera, Erotylidae) from Chejudo Island off South Korea

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Abstract A new erotylid beetle, *Dacne osawai* sp. nov., is described from Mt. Halla, Chejudo Is., off South Korea. This new species is similar to *D. japonica* CROTCH in general coloration, but easily distinguished from the latter by the slender body, the form of elytral markings, strongly punctured dorsal surface and the structure of the male genitalia.

Up to the present, three species of the genus *Dacne* have been recorded from the mainland of Korea. They are *D. fungorum nigrocephala*, *D. picta* and *D. zonaria* (CHÛJÔ, CHÛJÔ & LEE, 1993). However, there is no record of *Dacne* species from Chejudo Is., off South Korea. In 1998, the junior author obtained materials of an erotylid beetle belonging to the genus *Dacne* from the mountain area of Chejudo Is. Through the courtesy of Dr. Syozo OSAWA, the senior author had an opportunity to examine a series of these materials. After a careful study, it has become clear that this species is new to science, as will be described in this paper.

Before going further, we would like to express our sincere gratitude to Dr. Syozo OSAWA of JT Biohistory Research Hall, Takatsuki, Osaka, for his kind guidance in our taxonomic study. Hearty thanks are also due to Mr. Sai-Ho JUNG of Cheju Folklore and Natural History Museum for his collaboration in field research, and Dr. Masahiro KON of the University of Shiga Prefecture for taking photographs of scanning electron microscope (SEM).

Dacne (s. str.) ***osawai*** ASHIDA et KIM, sp. nov.

(Figs. 1–5)

Length: 2.75–3.75 (mean: 3.30) mm. Width: 1.20–1.60 (mean: 1.40) mm.

Similar to *D. japonica* CROTCH (1873, p. 188; M. CHÛJÔ, 1969, pp. 78, 80, pl. 2, fig. 1) in general coloration, but distinguished from the latter by the slender body, the

form of elytral markings, strongly punctured dorsal surface, less convex pronotum and robust median lobe of male genitalia.

Body elongate-oblong, about 2.35 times as long as width, moderately convex on dorsum. Head, pronotum, scutellum and ventral surface red-brown, lustrous; antennae, mouth-parts and legs red-brown; elytra shining black, with two large transverse red-brown patches, each lying obliquely from the humeral part to the suture, joining each other at suture, not occupying just humeral part, their front and hind margins almost straight.

Head somewhat sparsely punctured, though more strongly than in *D. japonica*; compound eyes larger than in *D. japonica*; head width about 1.58 times as wide as interocular distance; clypeus coarsely punctured, its front margin slightly emarginate with fine pubescence; mouth-parts as in *D. japonica*.

Antennae with eleven segments, a little more slender than in *D. japonica*; the 1st segment robust; the 2nd as long as width; the 3rd cylindrical, 1.5 times as long as width, longer than 2nd and 4th; the 4th and the 5th as long as width; the 6th and the 7th wider than length; the 8th subtriangular, twice as wide as length; terminal three segments forming a club, wearing yellow-white pubescence; the 9th twice as wide as length; the 10th about 3 times as wide as length; the 11th 1.6 times as wide as length, slightly projecting outward.

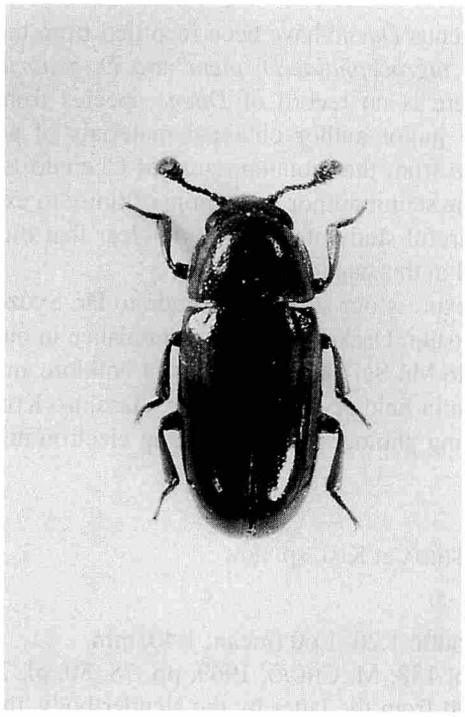
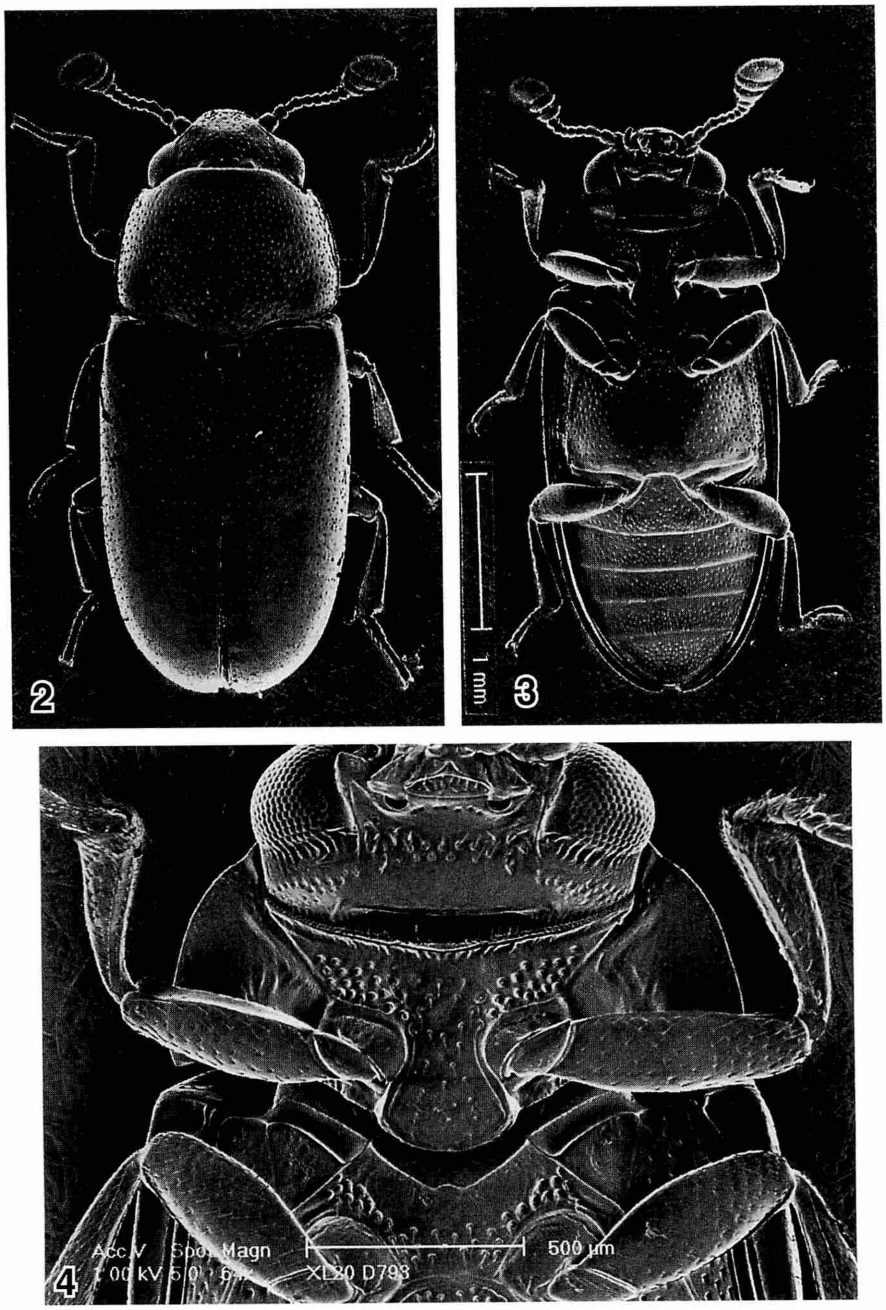


Fig. 1. *Dacne* (s. str.) *osawai* ASHIDA et KIM, sp. nov., ♂, from Mt. Halla; dorsal view.

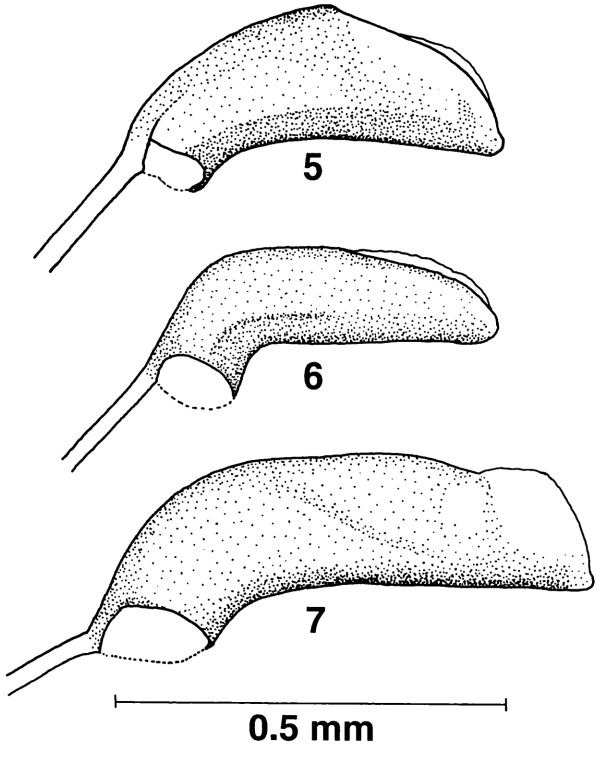


Figs. 2–4. SEM of *Dacne* (s. str.) *osawai* ASHIDA et KIM, sp. nov., ♂, from Mt. Halla; dorsal view (2), ventral view (3), and prosternum (4).

Pronotum transverse, about 1.42 times as wide as length in median line, moderately convex, closely and strongly punctured; sides ridged, feebly rounded, gently narrowed in front; anterior margin arcuate in middle area and emarginate on each side; front angles projected forward though blunt; posterior margin ridged, arched rearward in middle area, sinuate at each side; hind angles obtuse. Scutellum subpentagonal with a few fine punctures.

Elytra a little wider than prothorax, slightly widened from the base, widest at about three-eighths from the base, then gently tapered to apices, 1.58 times as long as its greatest width; the dorsal surface convex, striate-punctate, more sparsely punctured than in pronotum.

Prosternum rather sparsely punctured, procoxal lines short, not meeting each other in apical part, prosternal process as long as width, the sides and posterior margin distinctly ridged, surface flattened and very sparsely punctured. Mesosternum coarsely but strongly punctured. Metasternum strongly punctured in side areas, finely in middle area; mesocoxal lines absent. Abdomen with each sternite sparsely punctured in basal half, strongly and closely in apical half with fine pubescence; metacoxal lines well-marked obliquely rearward, not reaching the apical margin of the 1st sternite.



Figs. 5–7. Median lobe of male genitalia, left lateral view, of *Dacne* species; *Dacne osawai* ASHIDA et KIM, sp. nov., from Mt. Halla (5), *D. japonica* CROTCH (6), and *D. picta* CROTCH (7).

Legs more slender than in *D. japonica*; tarsi cylindrical, the 5th segment as long as the four basal segments put together.

Male genitalia as illustrated in Fig. 5; median lobe heavily sclerotized, about two-elevenths as long as elytra, robuster, shorter and less strongly bent toward the ventral side at base than in *D. japonica*.

Type series. Holotype: ♂, allotype: ♀, 4–VII–1998, C.-G. KIM leg. Paratypes: 10♂♂, 14♀♀, same data as holotype. The holotype and allotype are preserved in the collection of the Cheju Folklore and Natural History Museum. Two paratypes are in the collection of the National Science Museum (Nat. Hist.), Tokyo, and the others in the authors' collection.

Type locality. Tonneko, 1,500m alt., Mt. Halla, Chejudo Is., off South Korea.

Notes. The present new species is similar to *D. japonica* CROTCH distributed in Japan, but is easily distinguished from the latter species by the characteristics described above.

The species also resembles *D. picta* CROTCH in the structure of the body, but distinguishable by the coloration of the pronotum and elytra, and the structure of the male genitalia.

The type specimens of this new species were obtained from a kind of brown rot fungi (*Paxillus pannoides* ?) on a living pine tree (*Pinus thunbergii*).

要　　約

芦田　久・金　衝坤：韓国済州島産ホソオオキノコムシ属の1新種．—— 済州島漢拏山（標高1,500 m）で採集されたホソオオキノコムシ属の一種を，*Dacne osawai* ASHIDA et KIM と命名して記載した．本種は色彩がニホンホソオオキノコムシ *Dacne japonica* CROTCH に似ているが，体形，上翅の斑紋の形，背面の点刻，雄交尾器の構造などにより容易に識別できる．

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Elytra, *Tokyo*, **27** (2): 386, November 13, 1999

Records of Some Coleoptera from the Island of Ohgami-shima, the Ryukyus

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On August 7, 1999, we had fortunately an opportunity to visit and to collect insects on Is. Ohgami-shima. This is a small islet (about 750 m in length), lying about 4.5 km northeast of Shimajiri on Is. Miyako-jima, the Ryukyus. So far as we are aware, the coleopteran fauna of the island has never been recorded until now. The species collected are as listed below.

Cicindelidae	*Cicindela yuasai okinawensis* HORI et CASSOLA
Dytiscidae	*Copelatus andamanicus* RÉGIMBART
Hydrophilidae	*Coelostoma stultum* (WALKER)
Scarabaeidae	*Protaetia pryeri nitidicosta* YAHATA
Limnichidae	*Babalimnichus masamii* M. SATÔ
Elateridae	*Abelater satoi* (ÔHIRA)
Ciidae	*Octotemnus laminifrons* (MOTSCHULSKY)
Tenebrionidae	*Diphyrrynchus iriomotensis* M. T. CHÛJÔ; *D. shibatai* KASZAB *Nesocaedius minimus* (M. T. CHÛJÔ) *Trachyscelis chinensis* CHAMPION *Platydema subfascia* (WALKER) *Ceropria induta* (WIEDEMANN) *Pentaphyllus dilatipes* SHIBATA; *P. philippinensis* KASZAB *Hypophloeus amamiensis* KASZAB *Eurohemicera sakishimensis* (M. T. CHÛJÔ)
Elacatidae	*Elacatis atrithorax* PIC
Cerambycidae	*Mesosa praelongipes* KUSAMA et IRIE *Bumetopia oscitans sakishimana* HAYASHI *Sybra pascoei* LAMEERE; *S. orbinata miyakojimana* HAYASHI *Ropica caenosa* (MATSUSHITA); *R. honesta* PASCOE *Pterolophia annulata* (CHEVROLAT)

Elytra, *Tokyo*, **27** (2): 387–403, November 13, 1999

Cantharid Beetles of the Genus *Habronychus* (Coleoptera, Cantharidae) from Taiwan, with Description of a New Subgenus

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Abstract Two new species of the genus *Habronychus* are described and illustrated from Taiwan under the names *H. longicornis* and *H. lalashanensis*. Two species, *Stenothemus furcatus* and *Athemellus intermixtus*, are transferred to the genus *Habronychus*. All the four species belong to the new subgenus *Monohabronychus*. A key is provided to all the *Habronychus* species from Taiwan on the basis of males.

Wittmer (1981) applied the generic name *Habronychus* to *Anolisus rubicundus* Champion, 1926, from Burma (Myanmar) with a preliminary description. At the same time, he erected the subgenus *Macrohabronychus* for some Himalayan species, which are distinguished from the nominotypical subgenus by morphological difference in hind claws. After that, the same author (1982) carefully dealt with the Taiwanese species of the genus, transferred *Malthinus sauteri* Pic, 1934, to it, and described two new species, *Habronychus nantouanus* and *H. kurosawai*.

Following to him, Ishida (1986) and Satô (1986) recorded from Japan three *Habronychus* species in total including two new species, all belonging to *Habronychus* (s. str.).

Recently, we reexamined the collections of ours and of some other institutions in Japan, and were fortunate to find two additional species of the genus from Taiwan. After a careful examination, it has become clear that they are new to science, as will be described in the present paper. *Stenothemus furcatus* Wittmer, 1986 and *Athemellus intermixtus* (Wittmer, 1954) should also belong to the same genus. However, these four species share a character state of claws not found in the nominotypical subgenus and *Macrohabronychus*, and seem to form a new subgenus, which will be called

Monohabronychus.

All the seven species of the genus *Habronychus* hitherto known from Taiwan, including the two new species, are summarized in a key based on their males.

We wish to express our hearty thanks to the late Dr. Walter WITTMER of the Naturhistorisches Museum Basel for permitting us loan or reexamination of some type specimens, and to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his critical reading of the original manuscript and constant guidance. Our thanks are also due to Drs. Yasuaki WATANABE, Yutaka ARITA, Mamoru OWADA, Masaaki TOMOKUNI, Akihiko SHINOHARA, Shûhei NOMURA, Masahiro SAKAI, Akiko SAITO, Toshio SENOH, Kouichi MATSUMOTO and Toshio KISHIMOTO, the late Dr. Kintaro BABA, and Messrs. Tôru SHIMOMURA, Shusei SAITO, Hiroaki HIRAMATSU, Michiaki HASEGAWA, Yoshiyasu KUSAKABE, Masaaki KIMURA, Chun-Lin LI and Rikio MATSUMOTO for their kind support of invaluable materials.

The specimens examined in the present study, including the type series of new species, are deposited in the following institutions to be referred to by abbreviations in the text: CBM: Natural History Museum and Institute, Chiba; KURA: Kurashiki Museum of Natural History; NHMB: Naturhistorisches Museum Basel; NSMT: National Science Museum (Nat. Hist.), Tokyo; NWU: Nagoya Women's University; TUA: Tokyo University of Agriculture, and EUM: Ehime University, Matsuyama.

This study is supported in part by the Grant-in-aid for Scientific Research No. 01041099 for Field Research of the Monbusho International Scientific Research Program, Japan.

Genus ***Habronychus*** WITTMER

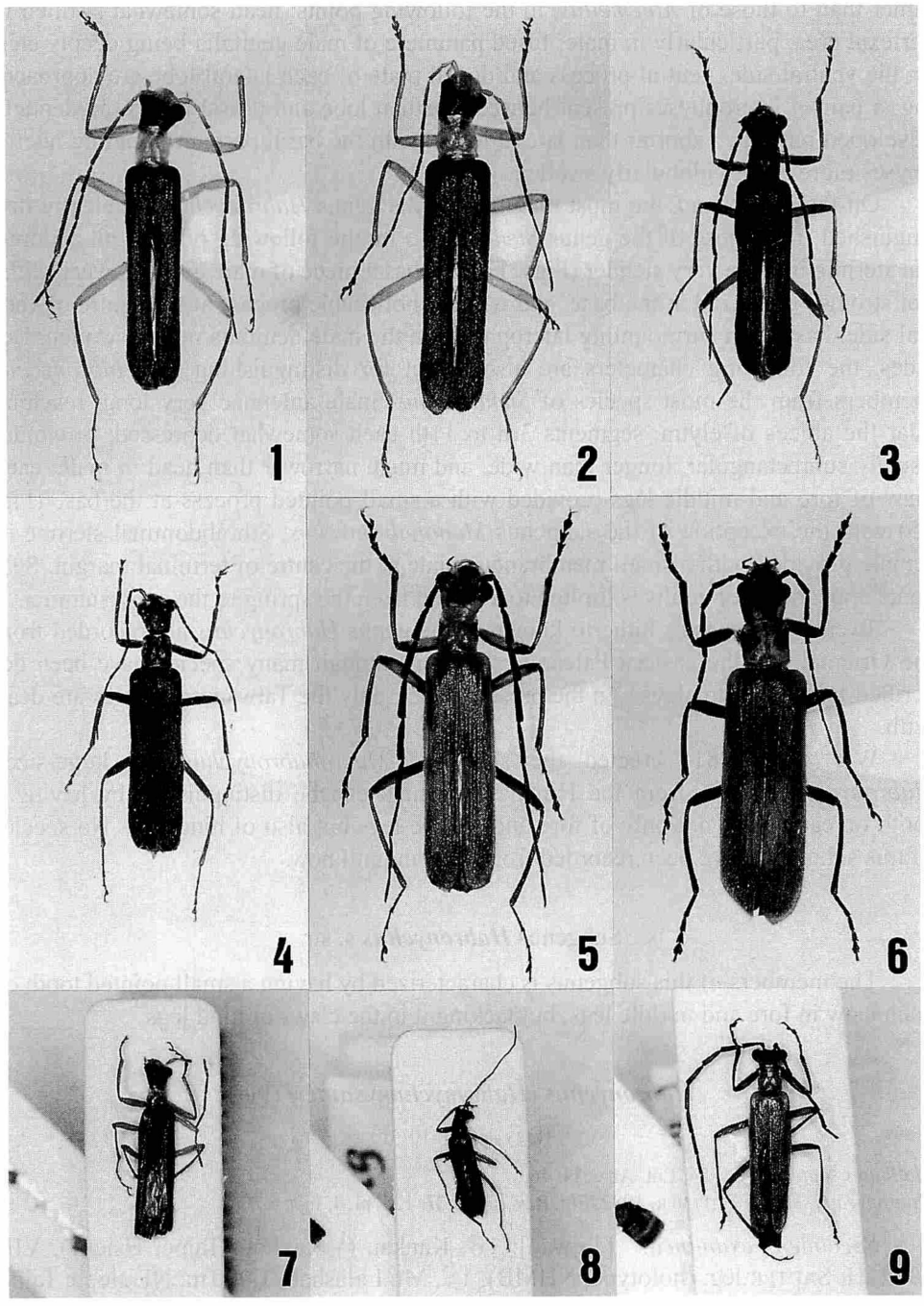
Habronychus WITTMER, 1981, Ent. basil., **6**: 399 (preliminary description); 1982, Ent. Rev. Japan, **37**: 124. —— ISHIDA, 1986, Trans. Shikoku ent. Soc., **17**: 215.

Type species: *Anolisus rubicundus* CHAMPION, 1926, by monotypy.

WITTMER (1982) designated *Malthinus sauteri* as the type species of the genus *Habronychus*, but one year before, he (1981) used *Habronychus* for *Anolisus rubicundus* with a preliminary description. *Anolisus rubicundus* should therefore be regarded as the type of the genus *Habronychus*. ISHIDA (1986) pointed this out, but did not propose change of type species.

WITTMER (1982) stated that the genus *Habronychus* was related to the genus *Athemellus* WITTMER, 1972 (downgraded by WITTMER (1995) to a subgenus of the genus *Athemus*). However, according to our recent observation, almost all the species of *Habronychus* are similar to the members of the genus *Stenothemus* BOURGEOIS, 1907,

Figs. 1–9. *Habronychus* (*Habronychus*) spp. from Taiwan. —— 1–2, 7, *H.* (*H.*) *sauteri* (PIC); 1, ♂ from Mt. Lalashan; 2, ♀ from Meifeng; 7, ♂ (holotype) from Kankau. —— 3–4, 8, *H.* (*H.*) *nantouanus* WITTMER; 3, ♂ from Meishan – Tien Chi; 4, ♀ from Tien Chi; 8, ♂ (holotype) from Meifeng. —— 5–6, 9, *H.* (*H.*) *kurosawai* WITTMER; 5, ♂ from Mt. Lalashan; 6, ♀ from Nanshanchi; 9, ♂ (holotype) from Pilu-Shenmu.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rather than to those of *Athemellus*, in the following points: head somewhat swollen in vertexal area, particularly in male; fused paramere of male genitalia being deeply cleft on the ventral side, ventral process and dorsal plate of each lateral lobe are approaching; a pair of laterophyses present between median lobe and dorsal plates, moderately developed but much shorter than lateral lobes, with the basal part surmounting laterophyses more or less globularly swollen.

On the other hand, the most members of the genus *Habronychus* are clearly distinguished from those of the genus *Stenothemus* by the following points: 9th abdominal sternite in male very slender (Figs. 13, 27); basal piece of male genitalia very wide, not strongly squeezed at the base, and without noticeable process at the centre of ventral side; basal part surmounting laterophyses in the male genitalia not so swollen. Besides, the following characters are also useful for distinguishing the *Habronychus* members from the most species of *Stenothemus*: male antennae very long, reaching near the apices of elytra, segments 3rd to 11th each somewhat depressed; pronotum usually subrectangular, longer than wide, and much narrower than head in male; each claw of fore and middle legs provided with a small pointed process at the base (Fig. 15) with the exception of the subgenus *Monohabronychus*; 8th abdominal sternite of female provided with a small membranous plate at the centre of terminal margin. Seasonal appearance of adults is limited to a period from the spring to the early summer.

Twenty-two species hitherto known of the genus *Habronychus* are recorded from the Oriental and the eastern Palearctic Regions, though many species have been described from the Himalayas. In the present paper, only the Taiwanese species are dealt with.

WITTMER (1981) erected the subgenus *Macrohabronychus* for large-sized *Habronychus* species from the Himalayas, which can be distinguished by having a tooth on each claw, not only of fore and middle legs but also of hind legs. No species of this subgenus have been recorded from Taiwan until now.

Subgenus ***Habronychus*** s. str.

The members of this subgenus is characterized by having a small pointed tooth on each claw in fore and middle legs, but lacking it in the claws of hind legs.

Habronychus* (*Habronychus*) *sauteri (PIC)

(Figs. 1–2, 7, 10–15)

Malthinus sauteri PIC, 1934, Ent. Anz., **14**: 46.
Habronychus sauteri: WITTMER, 1982, Ent. Rev. Japan, **37**: 125, pl. 4, figs. 6–7.

Specimens examined. [Taiwan]: 1♂, Kankau (=Kankou, Taipei Hsien?), VII–1912, H. SAUTER leg. (holotype, NHMB); 1♀, Mt. Lalashan, 1,900 m, NE slope, Taipei Hsien, 7–IV–1981, T. SHIMOMURA leg. (NSMT); 1♂, Mt. Lalashan, Taoyuan Hsien, 4–IV–1991, Y. OKUSHIMA leg. (KURA); 2♂♂, Mao-mu Shan (Pa-san-ling Lin-tao), alt.

2,550–2,600 m, Jen-ai Hsiang, Nantou Hsien, 22–V–1991, A. SAITO leg. (CBM–ZI 29279, 29281); 1 ♀, Meifeng, Nantou Hsien, 12–V–1994, T. KISHIMOTO leg. (KURA); 1 ♀, Pilu, Hualien Hsien, 24–V–1999, M. SATÔ leg. (NWU).

Distribution. Northern to central Taiwan.

Notes. The antennae of this species are thin, filiform and moderately long, attaining to apical fifth of the elytra in the male, or attaining to the middle of the elytra in the female, and it is hardly depressed in each segment in both the sexes. WITTMER (1982) illustrated the male genitalia of this species only in ventral view without detailed description. Detailed morphological data of the male genitalia and of the 8th abdominal sternite of the female will be given below for the first time.

Male genitalia:— Ventral process of each lateral lobe short and stout, dorsal plate of each lateral lobe deeply emarginate at the inner side, and the basal side somewhat triangular with rounded corner. A pair of laterophyses mostly parallel to each other, each laterophysis somewhat slender, apex not reaching the terminal margin of dorsal plate, with pointed apex dorsad, basal part surmounting laterophyses globular but not so swollen. Inner sac lengthened posteriad, as long as tegmen. Basal piece not so broad, slightly squeezed at the base, with a minute process at the centre of ventral side (Figs. 10–12).

Eighth abdominal sternite in female:— Terminal margin largely and roundly projected at both sides, middle lobe somewhat membranous and more projected than those on both sides (Fig. 14).

Ninth abdominal tergite and sternite (Fig. 13) and claws of left fore leg (Fig. 15) in male are as illustrated.

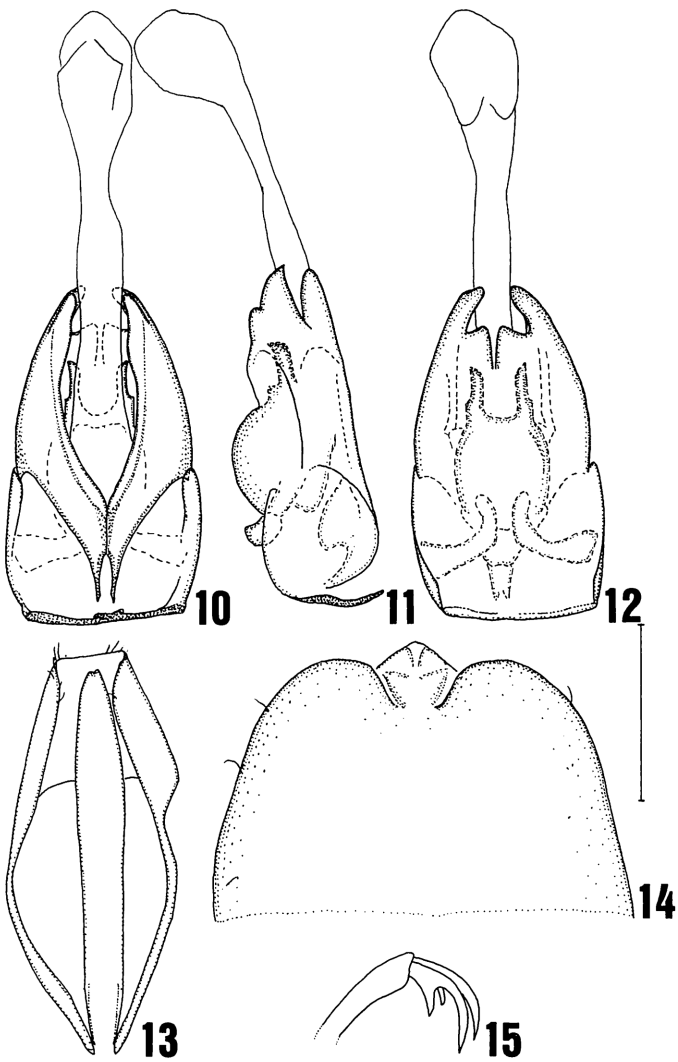
This species was originally described by PIC (1934) from "Kankau, Formosa" (=Kankou, Taipei Hsien?). After that, WITTMER (1982) recorded some specimens from Alishan, Palin, Meifeng, Mt. Lalashan, and nr. Chihtuan.

Habronychus* (*Habronychus*) *nantouanus WITTMER

(Figs. 3–4, 8, 16)

Habronychus nantouanus WITTMER, 1982, Ent. Rev. Japan, **37**: 125, pl. 4, fig. 8.

Specimens examined. [Taiwan]: 1 ♂, Meifeng, Nantou Hsien, 26–VI–1977, S. & J. KLAPPERICH leg. (holotype, NHMB); 1 ♀, Alishan, alt. 2,300 m, Nantou Hsien, 5~6–VII–1965, T. NAKANE leg. (paratype, NSMT); 1 ♀, Yushih, alt. 1,900 m, Nantou Hsien, 4–VII–1986, K. BABA leg. (NWU); 1 ♀, Sungkang – Meifeng, Nantou Hsien, 20–VI–1994, K. MATSUMOTO leg. (KURA); 1 ♂, 1 ♀, Shyk Shan, nr. Liukuei, Kaohsiung Hsien, 17–VI–1986, K. BABA leg. (NWU); 1 ♀, Thu Yun Shan, nr. Liukuei, Kaohsiung Hsien, 17–VI–1986, K. BABA leg. (NWU); 2 ♀♀, Shi Nan Shan, Kaohsiung Hsien, 22–VI–1986, K. BABA leg. (NWU); 1 ♀, Shyk Shan, nr. Liukuei, Kaohsiung Hsien, 28–VI–1986, K. BABA leg. (NWU); 1 ♂, Meishan – Tien Chi, alt. 800–2,300 m, Kaohsiung Hsien, 29–VI–1986, K. BABA leg. (NWU); 2 ♀♀, Tien Chi, alt. 2,200 m,



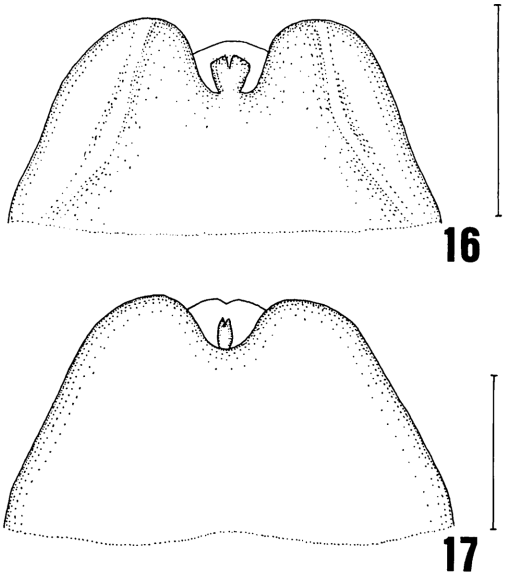
Figs. 10–15. *Habronychus* (*Habronychus*) *sauteri* (PIC). —— 10–12, Male genitalia (10, ventral view; 11, lateral view; 12, dorsal view); 13, ventral view of 9th abdominal tergite and sternite in male; 14, 8th abdominal sternite in female; 15, claws of left fore leg in male. (Scale: 0.5 mm for 10–14, 0.4 mm for 15.)

Kaohsiung Hsien, 29–VI–1986, K. BABA leg. (NWU).

Distribution. Central to southern Taiwan.

Notes. Detailed morphological data of the 8th abdominal sternites of the female are given below for the first time.

Eighth abdominal sternite in female:— Terminal margin widely and roundly pro-



Figs. 16–17. Eighth abdominal sternites in female of *Habronychus* (*Habronychus*) spp. —— 16, *H.* (*H.*) *nantouanus* WITTMER; 17, *H.* (*H.*) *kurosawai* WITTMER. (Scales: 0.5 mm.)

jected at both sides and deeply emarginate at the middle, with a small subrhombic sclerite connected to terminal margin in the notch, and surrounded by membrane. Disc provided with a longitudinal hollow on each side, from the apex of rounded projection to the basal side (Fig. 16).

This species was described from Meifeng, and recorded by WITTMER (1982) from two other localities, Hohuanchi – Sungchuankang and Alishan. At present, it is also recorded from southern Taiwan.

Habronychus* (*Habronychus*) *kurosawai WITTMER

(Figs. 5–6, 9, 17)

Habronychus kurosawai WITTMER, 1982, Ent. Rev. Japan, **37**: 126, pl. 4, fig. 9.

Specimens examined. [Taiwan]: 1♂, Pilu-Shenmu, Hualien Hsien, 18 or 24–V–1978, T. SHIMOMURA leg. (holotype, NHMB); 1♀, Mt. Lalashan, Taoyuan Hsien, 2–V–1981, S. TSUYUKI leg. (NWU); 1♀, Mt. Lalashan, Taoyuan Hsien, 4–V–1981, S. TSUYUKI leg. (NWU); 1♀, nr. Mt. Lalashan, Taoyuan Hsien, 5–V–1983, M. HASEGAWA leg. (KURA); 2♂♂, Mt. Lalashan, N. Taiwan, 2–V–1988, M. KIMURA leg. (NWU); 1♂, Mt. Lalashan, Taoyuan Hsien, 4–IV–1991, Y. OKUSHIMA leg. (KURA); 1♂, Suling (Ssuleng?) – Chihtuan, Taoyuan Hsien, 14–IV–1984, Y. KUSAKABE leg. (KURA); 1♂, Mt. Lalashan, Taoyuan Hsien, 13 or 16–IV–1984, Y. KUSAKABE leg. (KURA); 1♂, Nanshanchi, Nantou Hsien, 25–III–1977, Y. NOTSU leg. (paratype, NWU); 1♂, 1♀,

Nanshanchi, Nantou Hsien, 27–III–1981, H. YOSHIMOTO leg. (KURA); 1♀, Kuantaoshan, Nantou Hsien, 5–IV–1984, Y. KUSAKABE leg. (KURA); 1♂, Lienhuachih, Nantou Hsien, 23–III–1983, Y. KUSAKABE leg. (KURA); 1♀, Shi Nan Shan, alt. 2,000 m, Kaohsiung Hsien, 29–IV–1986, K. BABA leg. (NWU).

Distribution. Taiwan.

Notes. This species is furnished with black markings at the centre of head and at the median parts of pronotal lateral sides, though the blackish areas are variable and sometimes spread with individuals. The pronotum and elytra are almost orange yellow in most specimens including the holotype, but the pronotum is more blackish and the elytra more reddish in the two males from Mt. Lalashan, collected by M. KIMURA on 2–V–1988.

Detailed morphological data of the 8th abdominal sternites of the female will be given below for the first time.

Eighth abdominal sternite in female:— Terminal margin widely and roundly projected at both sides and roundly emarginate at the middle, provided with membrane in the notch and a small longitudinal sclerite on it (Fig. 17).

This species was originally described from Pilu-Shenmu, and recorded by WITTMER (1982) also from Mt. Lalashan, Nanshanchi and nr. Chihtuan. At present, it is also recorded from southern Taiwan (Shi Nan Shan).

Subgenus ***Monohabronychus*** OKUSHIMA et M. SATÔ, nov.

Type species: *Podabrinus intermixtus* WITTMER, 1954, by present designation.

Male. Head somewhat swollen in vertexal area; antenna very long and filiform; eyes globular and strongly projected. Pronotum subquadrate or subrectangular, much narrower than width of head; legs slender; all claws simple (Fig. 29). Ninth abdominal sternite very slender (Fig. 27); genitalia stout, dorsal plate of each lateral lobe broad, basal part surmounting laterophyses globular but not so swollen, inner sac shorter than tegmen, basal piece wide, without clear process on the ventral side.

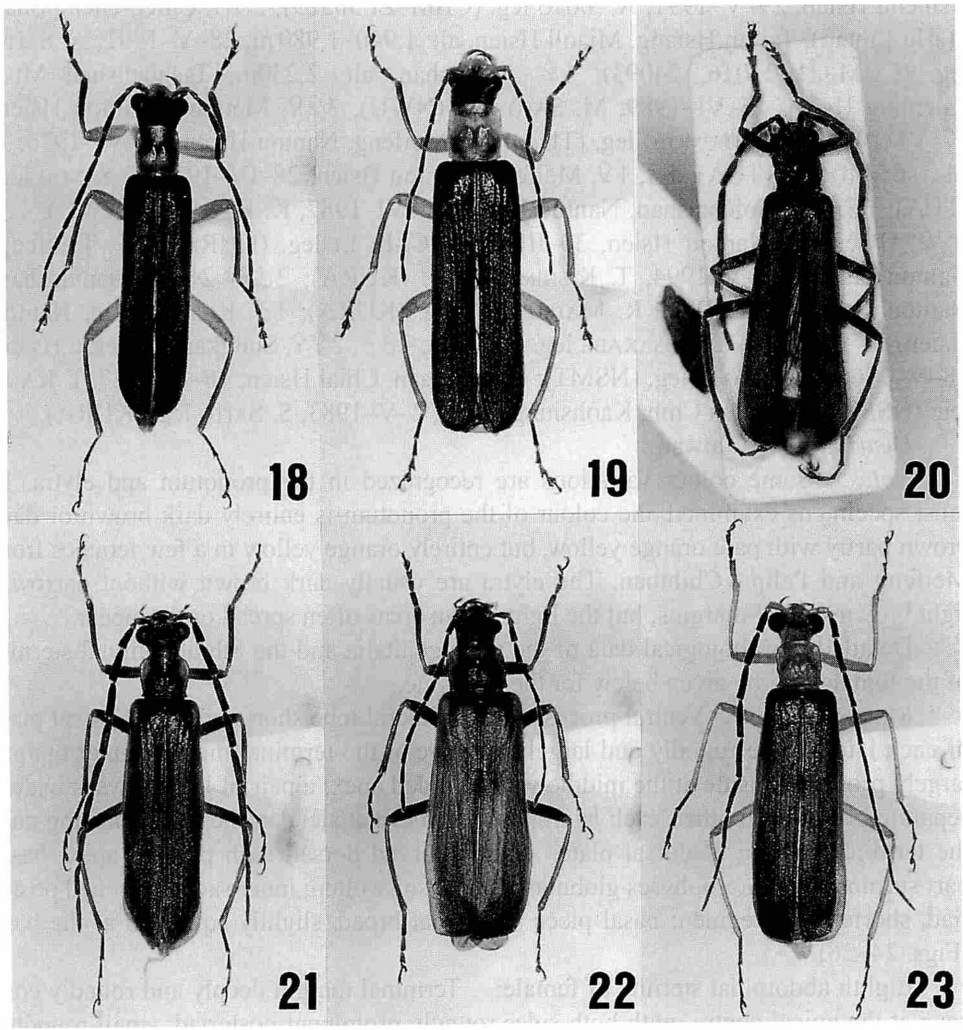
Female. Similar to male, but different from it in the following points: antenna much shorter; eyes smaller; pronotum and elytra broader; 8th abdominal sternite with a small sclerite at apical centre.

Notes. This new subgenus is similar to the nominotypical subgenus and the subgenus *Macrohabronychus* in the structure of head, antenna, pronotum, the 9th abdominal sternite in the male and the 8th abdominal sternite in the female, but is clearly distinguished from them by the fact that all the claws are simple in both the sexes.

Habronychus* (*Monohabronychus*) *intermixtus (WITTMER), comb. nov.

(Figs. 18–19, 24–29)

Podabrinus intermixtus WITTMER, 1954, Revue suisse Zool., **61**: 275.
Athemellus intermixtus: WITTMER, 1972, Ent. Arb. Mus. Frey, **23**: 124; 1983, Ent. Rev. Japan, **38**: 168.



Figs. 18–23. *Habronychus* (*Monohabronychus*) spp. from Taiwan. —— 18–19, *H.* (*M.*) *intermixtus* (WITTMER); 18, ♂ from Kuantaoshan; 19, ♀ from Kuantaoshan. —— 20, *H.* (*M.*) *furcatus* (WITTMER); ♂ (holotype) from Alishan. —— 21–22, *H.* (*M.*) *longicornis* OKUSHIMA et M. SATÔ, sp. nov.; 21, ♂ (holotype) from Fushan Botanical Garden; 22, ♀ (allotype) from Fushan Botanical Garden. —— 23, *H.* (*M.*) *lalashanensis* OKUSHIMA et M. SATÔ, sp. nov., ♂ (holotype) from Mt. Lalashan.

Specimens examined. [Taiwan]: 1♂, Wulai, Taipei Hsien, 27–III–1968, T. KUNOU leg. (NWU); 1♂, 17–24 km SE of Taipei, Taipei Hsien, 16–IV–1965, Y. HIRASHIMA leg. Japan–U. S. Co-op. Sci. Programme (NSMT); 1♀, Palin – Chihtuan, Taoyuan Hsien, 27–IV–1978, N. YASHIRO leg. (EUM); 3♀♀, nr. Mt. Lalashan, Taoyuan Hsien, 5–V–1983, M. HASEGAWA leg. (KURA); 1♂, nr. Hsileng, Taoyuan Hsien, 14–V–1983, M. HASEGAWA leg. (KURA); 1♂, Kuanwu, alt. 2,000 m, Wu-feng Hsiang,

Hsinchu Hsien, 29–V–1991, A. SAITO leg. (CBM–ZI 30525); 2♂♂, Chieh-cheng Shan (Ta-lu Lintao), Tai-an Hsiang, Miaoli Hsien, alt. 1,940–1,980 m, 28–V–1991, A. SAITO leg. (CBM–ZI 24016, 24093); 1♀, Anmashan, alt. 2,230m, Tashuehshan Mts., Taichung Hsien, 15–VI–1989, M. SATÔ leg. (NWU); 3♀♀, Meifeng, Nantou Hsien, 17–VI–1976, T. MATSUMOTO leg. (TUA); 1♀, Meifeng, Nantou Hsien, 18–VI–1976, T. MATSUMOTO leg. (TUA); 1♂, 1♀, Meifeng, Nantou Hsien, 28–IV–1978, T. SENOH leg. (TUA); 1♂, Mt. Hohuanshan, Nantou Hsien, 10–VI–1987, K. BABA leg. (NWU); 1♂, 2♀♀, Hwei-sun, Nantou Hsien, 30–III–1990, C.-L. LI leg. (KURA); 1♂, Tsuifeng, Nantou Hsien, 14–V–1994, T. KISHIMOTO leg. (KURA); 2♂♂, 2♀♀, Kuantaoshan, Nantou Hsien, 9–IV–1996, R. MATSUMOTO leg. (KURA); 1♂, Kuantaoshan, Nantou Hsien, 24–IV–1984, Y. KUSAKABE leg. (KURA); 7♂♂, 2♀♀, Sungkang, Nantou Hsien, 18–V–1965, T. SHIRÔZU leg. (NSMT); 1♀, Alishan, Chiai Hsien, 18–V–1927, T. KANO leg. (NSMT); 1♂, Tien Chih, Kaohsiung Hsien, 2–V–1983, S. SAITO leg. (KURA).

Distribution. Taiwan.

Notes. Some colour variations are recognized in the pronotum and elytra. In most specimens examined, the colour of the pronotum is entirely dark brown or dark brown partly with pale orange yellow, but entirely orange yellow in a few females from Meifeng and Palin – Chihtuan. The elytra are usually dark brown without narrowly light brown sutural margins, but the light brown areas often spread or disappear.

Detailed morphological data of the male genitalia and the 8th abdominal sternite of the female will be given below for the first time.

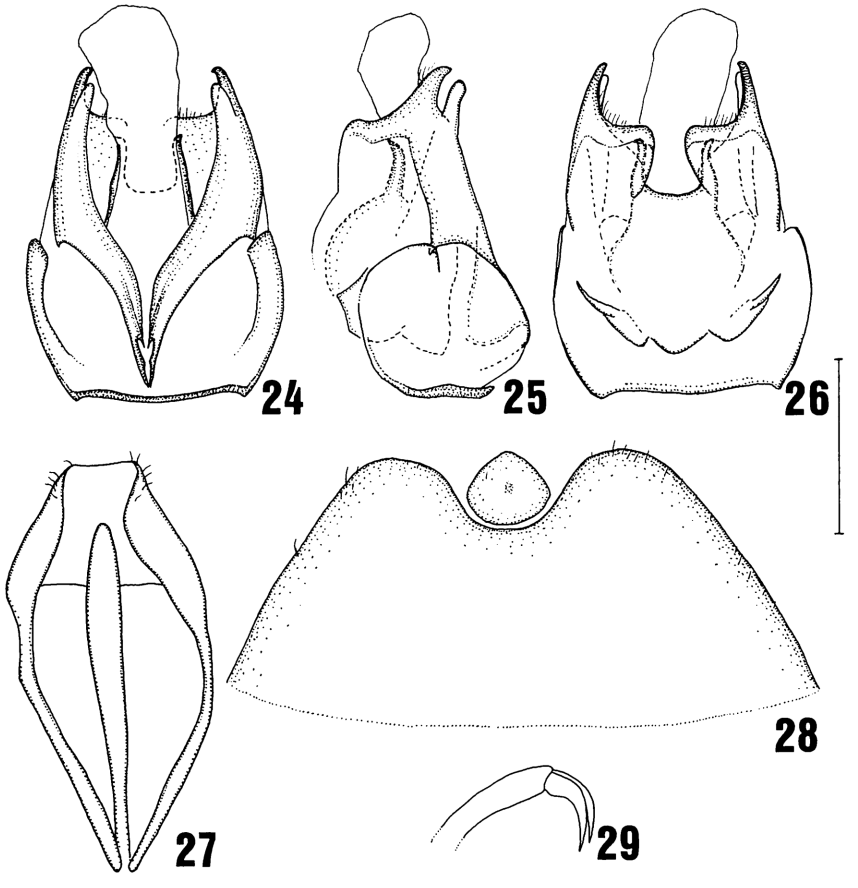
Male genitalia:— Ventral process of each lateral lobe short and stout; dorsal plate of each lateral lobe roundly and largely concave at the terminal margin, inner margin largely projected inside at the middle with rounded apex; a pair of laterophyses widely separated from each other, each laterophysis somewhat slender, the apex reaching near the terminal margin of dorsal plate, slightly curved dorsad with pointed apex; basal part surmounting laterophyses globular, but not so swollen; inner sac lengthened posteriad, shorter than tegmen; basal piece somewhat broad, slightly squeezed at the base (Figs. 24–26).

Eighth abdominal sternite of female:— Terminal margin deeply and roundly concave at the apical centre, with both sides roundly prominent posteriad; small roundish and triangular sclerite present behind the centre of terminal margin (Fig. 28).

Ninth abdominal tergite and sternite (Figs. 27) and claws of left fore leg (Fig. 29) in male are as illustrated.

WITTMER (1972; 1983) regarded this species as a member of the genus *Athemellus*, but it clearly belongs to the genus *Habronychus* in view of very slender 9th abdominal sternite in the male, the globular basal part surmounting laterophyses in the male genitalia, and the 8th abdominal sternite with a small sclerite in the female. It should belong to the new subgenus *Monohabronychus* because of simple claws of all the legs.

This species was described by WITTMER (1954) from Alishan. Later, he (1983) recorded it from many localities except the southern part of Taiwan. It is recorded



Figs. 24–29. *Habronychus* (*Monohabronychus*) *intermixtus* (WITTMER). —— 24–26, Male genitalia (24, ventral view; 25, lateral view; 26, dorsal view); 27, ventral view of 9th abdominal tergite and sternite in male; 28, 8th abdominal sternite in female; 29, claws of left fore leg in male. (Scale: 0.5 mm for 24–28, 0.4 mm for 29.)

herewith from Tien Chih in southern Taiwan.

Habronychus* (*Monohabronychus*) *furcatus (WITTMER), comb. nov.

(Fig. 20)

Stenothemus furcatus WITTMER, 1986, Ent. Rev. Japan, **41**: 131, fig. 1.

Specimens examined. 2♂♂, Alishan, Chiayi Hsien, alt. 2,200 m, Taiwan, 24–III–1982, T. SHIMOMURA leg. (holotype and paratype, NHMB).

Distribution. Central Taiwan.

Notes. The habitus of the holotype is as shown in Fig. 20. This species was de-

scribed by WITTMER (1986) as a member of *Stenothemus*, but should be regarded as a member of the genus *Habronychus*, as was already pointed out (OKUSHIMA & SATÔ, 1999), because of the following reasons: male antennae very long, segments 3rd to 11th each somewhat depressed; 9th abdominal sternite of male very slender; male genitalia stout, with its basal piece broad. It should be placed in the new subgenus *Monohabronychus* because of simple claws of all the legs.

This species has never been recorded again since originally described from Alishan.

Habronychus* (*Monohabronychus*) *longicornis OKUSHIMA et M. SATÔ, sp. nov.

(Figs. 21–22, 30–33)

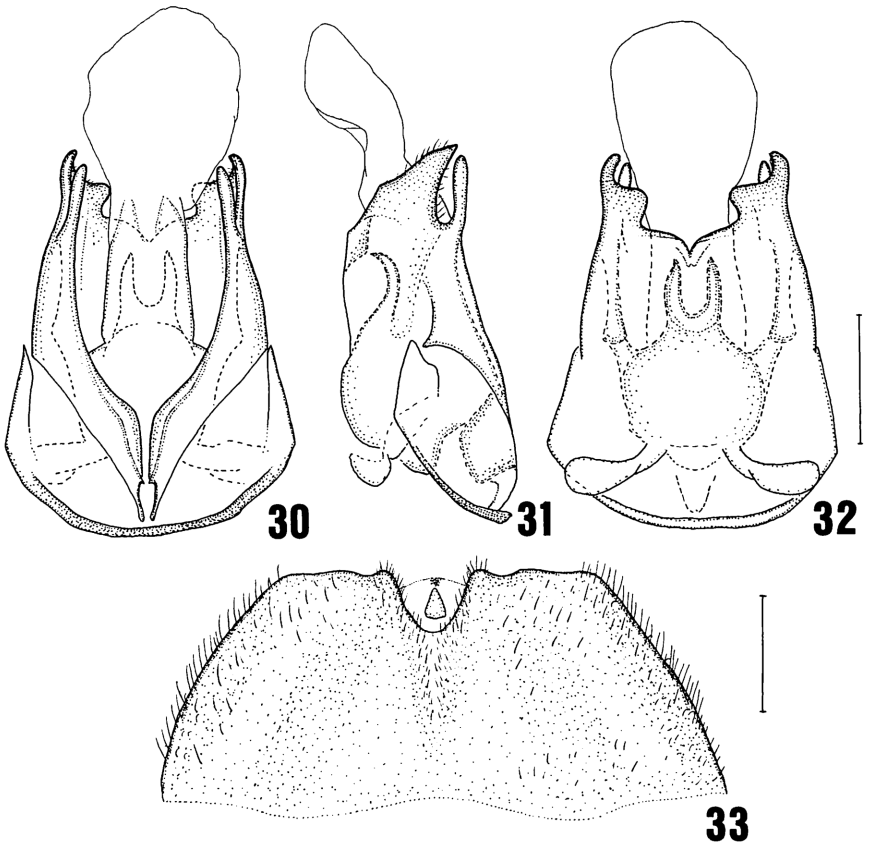
Male. Colour almost dark brown; basal two segments of antennae, antero-lateral areas of pronotum, humeri and articulations of legs yellowish brown; mandibles and claws reddish brown. Body closely covered with fine pale pubescence; apical margin of clypeus fringed with pale bristles.

Head slightly shorter than wide; disc moderately swollen in vertexal area, depressed along the apical margin of clypeus and in lateral areas before eyes, and lightly depressed along the mesal longitudinal area posteriorly from the middle; surface closely covered with minute grains and indistinctly punctured; apical margin of clypeus arcuate; eyes very large, globular and strongly prominent; antennae attaining to apical tenth of elytra, 1st segment clavate, 2nd short and somewhat triangular, 3rd to 11th subcylindrical, but somewhat depressed and gradually narrowed apically, relative length of each segment as follows:— 5.9 : 2.0 : 5.4 : 8.3 : 8.8 : 8.8 : 8.8: 8.8 : 8.7 : 7.8 : 8.9.

Pronotum subquadrate, 0.90 times (in the holotype; range 0.78–0.90) as wide as head, 0.89 (0.89–0.98) times as long as wide; anterior margin arcuate, but faintly sinuate at the centre and both sides; posterior margin weakly arcuate, and faintly indented at the centre; lateral margins arcuate, though faintly sinuate behind anterior angles, gradually approaching to each other posteriad, and somewhat constricted before posterior angles; anterior angles rounded, forming very obtuse angles; posterior angles mostly rectangular; disc moderately swollen, antero-lateral areas hollowed, the convexity extending onto the posterior area, the medio-longitudinal furrow distinct only in central area; surface indistinctly rugose and without lustre. Scutellum triangular with rounded apex.

Elytra conjointly 1.41 (1.41–1.60) times as wide as pronotum, 3.43 (3.30–3.53) times as long as wide at humeri, the sides subparallel, though slightly squeezed at humeri; disc closely and rugosely punctate, the punctures becoming weaker and sparser on basal part; each elytron provided with two vague costae.

Prosternal process concave at the apex. Mesosternum distinctly convex along the median line. Legs very slender; each femur mostly straight; each tibia feebly bent at



Figs. 30–33. *Habronychus* (*Monohabronychus*) *longicornis* OKUSHIMA et M. SATÔ, sp. nov. —— 30–32, Male genitalia (30, ventral view; 31, lateral view; 32, dorsal view); 33, 8th abdominal sternite in female. (Scales: 0.5 mm.)

the base. Relative lengths of hind tarsal segments as follows:— 3.4 : 2.0 : 1.8 : 1.6 : 1.8. Eighth abdominal sternite roundly concave at the terminal margin; 9th abdominal sternite very slender, pin-shaped, the sides converging posteriad, with pointed tip.

Male genitalia:— Ventral process of each lateral lobe slender; terminal margin of dorsal plate of each lateral lobe strongly sinuate, projected with rounded apex at the middle, and roundly emarginate on both sides; each laterophysis somewhat slender, the apex not reaching the terminal margin of dorsal plate, strongly curved dorsad with pointed apex directed to the inner tubercle of paramere; basal part surmounting laterophyses globular, but not so swollen; inner sac lengthened dorsad and posteriad, shorter than tegmen; basal piece expanded at the base (Figs. 30–32).

Length of body: 11.15 mm (in the holotype; range 8.29–11.15, measured from the anterior margin of clypeus to the apices of elytra); breadth of body: 2.80 (2.20–2.80)

mm; length of hind tibia: 3.41 (2.73–3.41) mm.

Female. Body clearly wider than in the male. Head as long as wide; eyes smaller than in the male; antennae much shorter than in the male, attaining to the middle of elytra and not so depressed as in the male. Pronotum subrectangular, 1.06–1.19 times as wide as head, 0.74–0.83 times as long as wide. Elytra conjointly 1.28–1.46 times as wide as pronotum, 2.81–3.12 times as long as wide at humeri. Eighth abdominal sternite deeply concave at the apical centre, with terminal margin feebly sinuate on both sides of the notch; membrane present and provided with a small triangular sclerite at the centre (Fig. 33).

Length of body: 8.83–11.54 mm (from anterior margin of clypeus to apices of elytra); breadth of body: 2.41–3.56 mm; length of hind tibia: 2.68–3.51 mm.

Type series. Holotype: ♂, Fushan Botanical Garden, Ilan Hsien, Taiwan, 30–III–1998, M. SATÔ leg. (NWU). Allotype: ♀, same data as for the holotype (NWU). Paratypes: [Taiwan]: 1♂, 1♀, same data as for the holotype (KURA); 3♀♀, Fushan Botanical Garden, Ilan Hsien, 29–III–1998, M. SAKAI leg. (NWU); 3♀♀, Chihtuan, Ilan Hsien, 28–III–1980, T. SHIMOMURA leg. (NSMT); 1♂, Ssuleng, alt. 1,300 m, Taoyuan Hsien, 23–III–1991, A. SHINOHARA leg. (NSMT).

Distribution. Northern Taiwan.

Notes. One male from Ssuleng and three females from Chihtuan are somewhat paler than the individuals from Fushan Botanic Garden, the head and pronotum being faintly reddish and the elytra yellowish brown as a whole.

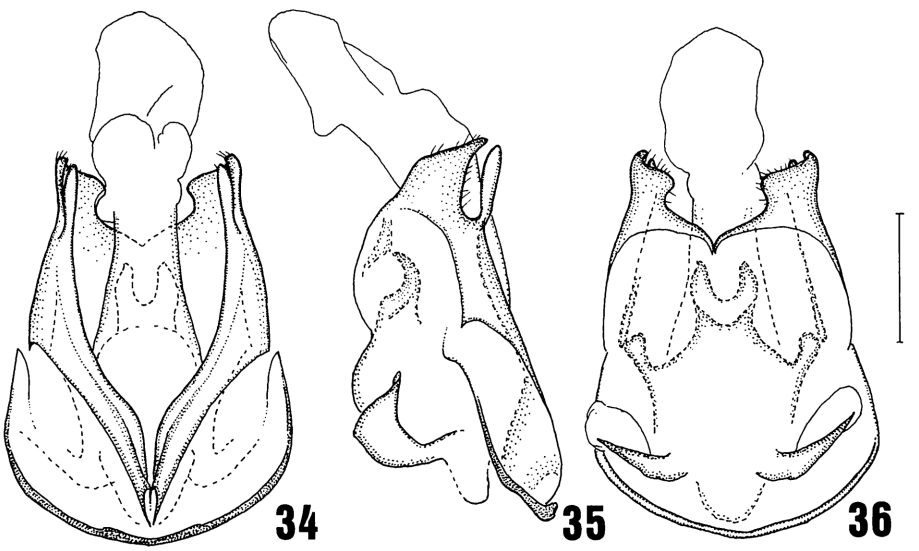
This new species closely resembles *H.* (*M.*) *furcatus* (WITTMER, 1986) from Taiwan, but can easily be distinguished from the latter by the pale-coloured basal two segments of the antennae, differently shaped pronotum which is widest in the anterior part, and slightly differently shaped dorsal plates of the male genitalia which are smoothly and roundly emarginate.

Habronychus* (*Monohabronychus*) *lalashanensis OKUSHIMA et M. SATÔ, sp. nov.

(Figs. 23, 34–36)

Male. Narrow lateral edges of pronotum, elytra, metasternum, eyes, 3rd to 11th antennal segments, maxillary and labial palpi and tarsi almost dark brown to black; mandibles and claws reddish brown; head, 1st and 2nd antennal segments, pronotum except for narrow lateral edges, scutellum, pro- and mesosterna, legs except for tarsi, and abdominal sternites yellowish brown. Body closely covered with fine yellowish pubescence; 3rd to 11th antennal segments and elytra closely covered with fine brown pubescence; apical margin of clypeus fringed with yellowish bristles.

Head slightly shorter than width; disc moderately swollen in vertexal area, and depressed along the apical margin of clypeus, lateral areas before eyes, longitudinal area between a pair of antennal sockets and basal area; surface closely covered with gross and indistinct grains and devoid of lustre; apical margin of clypeus arcuate; eyes



Figs. 34–36. Male genitalia of *Habronychus* (*Monohabronychus*) *lalashanensis* OKUSHIMA et M. SATÔ, sp. nov.; 34, ventral view; 35, lateral view; 36, dorsal view. (Scale: 0.5 mm.)

very large, globular and strongly prominent; antennae attaining to apical tenth of elytra, 1st segment clavate, 2nd short and somewhat triangular, 3rd to 11th subcylindrical, though somewhat depressed, gradually narrowed apicad, relative length of each segment as follows:— 5.0 : 2.0 : 4.8 : 7.5 : 7.7 : 8.1 : 8.5 : 8.4 : 7.6 : 7.0 : 7.5.

Pronotum subquadrate, 0.83 times as wide as head, 0.97 times as long as wide; anterior margin arcuate, posterior margin weakly arcuate, and feebly indented at the centre; lateral margins clearly sinuate, arcuately constricted before posterior angles; anterior angles obtuse; posterior angles acute; disc swollen, particularly so in the posterior area, the convexity being somewhat uneven, antero-lateral areas and postero-lateral sides hollowed; medio-longitudinal furrow distinct in central area; surface indistinctly punctured and without lustre. Scutellum triangular with rounded apex.

Elytra conjointly 1.90 times as wide as pronotum, 2.80 times as long as wide at humeri, the sides subparallel, though slightly squeezed at humeri; surface closely and rugosely punctate, though weakly and sparsely in basal area; each elytron provided with two vague costae.

Prosternal process concave at the apex. Mesosternum distinctly convex along the median line. Legs very slender, mostly straight, but the fore tibiae are feebly sinuate near the apices. Relative lengths of hind tarsal segments as follows:— 4.3 : 2.5 : 2.1 : 2.0 : 2.0. Eighth abdominal sternite roundly concave at the terminal margin; 9th abdominal sternite very slender, pin-shaped, the sides subparallel, with pointed tip.

Male genitalia:— Ventral process of each lateral lobe slender, somewhat clavate; terminal margin of dorsal plate of each lateral lobe strongly sinuate, projected with

rounded apex behind the centre, and roundly emarginate at its sides; each laterophysis somewhat stout, the apex not reaching the terminal margin of dorsal plate, strongly curved dorsad with pointed apex directed to the inner tubercle of paramere; basal part surmounting laterophyses globular, but not so swollen; inner sac lengthened dorsad and posteriad, shorter than tegmen; basal piece expanded at the base (Figs. 34–36).

Length of body: 11.4 mm (measured from the anterior margin of clypeus to apices of elytra); breadth of body: 3.05 mm; length of hind tibia: 3.56 mm.

Female. Unknown.

Type specimen. Holotype: ♂, Mt. Lalashan, Taoyuan Hsien, Taiwan, 4–IV–1991, T. KISHIMOTO leg. (KURA).

Distribution. Northern Taiwan.

Notes. This new species somewhat resembles *H.* (*M.*) *longicornis* OKUSHIMA et M. SATÔ, sp. nov. from Taiwan, but can easily be distinguished from the latter by the pale colour (yellowish brown) in the head, pronotum and legs, entirely dark brown to black elytra, and slightly differently shaped male genitalia, in particular, dorsal plates and laterophyses.

The three Taiwanese species recorded above and *Stenothemus fukienensis* WITTMER, 1974 from Fukien, China, are very similar to one another at least in the male, sharing the long antennae, large eyes, shape of genitalia, and so on.

Key to the Taiwanese Species of *Habronychus* Based on Males

1. Each claw of fore and middle legs provided with a tooth at base (*Habronychus* s. str.) ..... 2.
— Each claw of all legs simple (*Monohabronychus*) ..... 4.
2. Elytra wholly yellowish brown to reddish brown ..... *H.* (*H.*) *kurosawai* WITTMER.
— Elytra wholly black ..... 3.
3. Pronotum orange yellow ..... *H.* (*H.*) *sauteri* (PIC).
— Pronotum black ..... *H.* (*H.*) *nantouanus* WITTMER.
4. Antennae hardly depressed ..... *H.* (*M.*) *intermixtus* (WITTMER).
— Antennae somewhat depressed in 3rd to 11th segments ..... 5.
5. Head and prothorax yellowish brown ..... *H.* (*M.*) *lalashanensis* sp. nov.
— Head and prothorax dark brown to black, sometimes faintly reddish ..... 6.
6. Basal two segments of antennae blackish as in other segments ..... *H.* (*M.*) *furcatus* (WITTMER).
— Basal two segments of antennae yellowish brown ..... *H.* (*M.*) *longicornis* sp. nov.

要　約

奥島雄一・佐藤正孝：台湾のヒゲナガジョウカイ属とその1新亜属の記載．—— 台湾産のヒゲナガジョウカイ属の種は，これまで*Habronychus sauteri* (PIC), *H. nantouanus* WITTMER および*H. kurosawai* WITTMER の3種が記録され，いずれも*Habronychus*亜属に属することが知られて

いた．

今回，台湾産の標本を調べた結果，これまで*Athemellus intermixtus* (WITTMER)および*Stenothemus furcatus* WITTMERとして扱われていた2種は，雄の第9腹板，交尾器などの形態からいずれも*Habronychus*属に含まれるものと判断した．ところが，これらの種はこれまでに知られている*Habronychus*および*Macrohabronychus*のいずれの亜属とも爪の形態が異なるので，新亜属*Monohabronychus*を設立して，これに所属させた．さらに本亜属に所属する2新種を認め，*Habronychus* (*Monohabronychus*) *longicornis* OKUSHIMA et M. SATÔ, sp. nov.および*H.* (*M.*) *lalashanensis* OKUSHIMA et M. SATÔ, sp. nov.と命名して記載した．*H.* (*M.*) *longicornis*は，すでに台湾から知られている*H.* (*M.*) *furcatus* (WITTMER)に近縁だと考えられるが，触角の基部2節が淡色になることと雄交尾器の背板が滑らかにえぐられることで区別できる．*H.* (*M.*) *lalashanensis*は*H.* (*M.*) *longicornis*に近縁だと考えられるが，頭部，前胸背板および脚が淡色であること，上翅肩部が淡色にならないこと，および雄交尾器の背板と側突起の形態が若干異なることで区別できる．

なお，形態学的な観察の結果，本属はこれまで近縁だと考えられていたクビアカジョウカイ属*Athemellus*よりも，むしろクリイロジョウカイ属*Stenothemus*に近縁であることがわかった．

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Elytra, *Tokyo*, **27** (2): 404, November 13, 1999

List of the Host Fungi of the Japanese Ciidae (Coleoptera), IV

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So far I have outlined the host fungi of Japanese ciid beetles based on my own observation and some literature. As the result, wood-rotting fungi of sixty-one species were recorded as their hosts. This series of short reports is concluded in this part, but this list seems to be still far from perfect. I would like to go on now to complete the list of the host fungi of the Japanese ciid beetles by extending my investigations.

Family Hymenochaetaceae

Onnia scaura [Sajitake]
Octotemnus laminifrons

Onnia vallata [Azumatake]
Ceracis japonus

Inonotus mikadoi [Kawausotake]
Acanthocis inonoti, *Neoennearthron bicarinatum*, *Nipponapterocis brevis*, *Ceracis japonus*, *Syncosmetus japonicus*

Inonotus radiatus [Miyamauragintake]
Ennearthron cornutum, *Rhopalodontus harmandi*

Inonotus xeranticus [Daidaitake]
Ennearthron chujoi, *Neoennearthron bicarinatum*, *Nipponapterocis inermis*, *Nipponapterocis brevis*

Phellinus gilvus [Nendotake]
Ennearthron chujoi, *Euxestocis bicornutus*, *Neoennearthron bicarinatum*, *Nipponapterocis brevis*, *Nipponapterocis inermis*, *Ceracis japonus*, *Ceracis laminicollis*

Phellinus hartigii [Momisarunokoshikake]
Rhopalodontus harmandi

Phellinus tricolor?
Nipponapterocis hirsutus

Class Heterobasidiomycetes

Order Auriculariales

Family Auriculariaceae

Auricularia auricula [Kikurage]
Orthocis ornatus

Auricularia polytricha [Aragekikurage]
Orthocis ornatus

Elytra, *Tokyo*, **27** (2): 405–408, November 13, 1999

An Additional New Species of *Cyphonocerus* (Coleoptera, Lampyridae, Psilocladinae) from Taiwan

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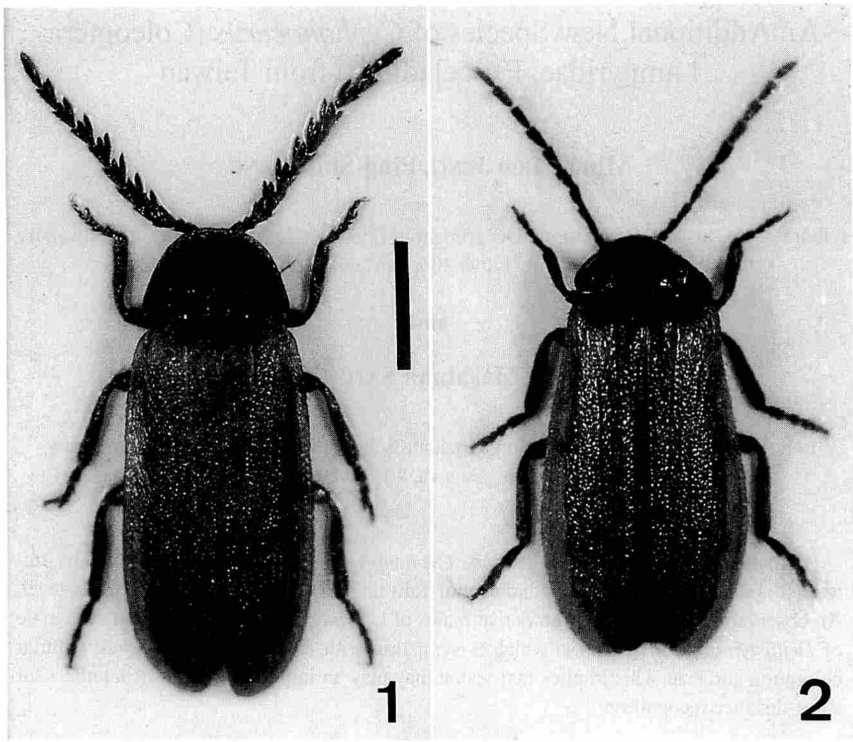
Abstract A new firefly species, *Cyphonocerus jenniferi*, is described from Taiwan. It is distributed in northern and central Taiwan about 1,500–2,100 m above sea-level. An observation in laboratory shows that males of *C. jenniferi* try to copulate with a female of *Drilaster atricollis* NAKANE which is sympatric with the former and has very similar coloration and size. This implies that vision may play an important role in *C. jenniferi* for short-distance recognition.

Introduction

The genus *Cyphonocerus* of Taiwan and Japan was recently reviewed by JENG *et al.* (1998). There were eleven species known from the world and three of them were recorded from Taiwan. When surveying the firefly fauna of the Taroko National Park in the spring of 1999, we found an undescribed species in the middle-elevation mountain areas in the park. In the meanwhile, our colleague also collected the species from northern Taiwan. Herein we are going to describe the new species and to modify our previous key to include it. The methods, terms and abbreviations are identical with those in JENG *et al.* (1998). The type series is deposited in the National Museum of Natural Science (NMNS), Taichung, Taiwan, the Department of Entomology, National Taiwan University (NTU), Taipei, Taiwan, and Nagoya Women's University (NWU), Nagoya, Japan, respectively. We wish to thank Jennifer LAI (National Taiwan University) and C. F. LEE (Ohio State University, Columbus, U.S.A.) for sending us material, and Dr. J. S. ASHE (University of Kansas) for reading the manuscript. The study was financially supported by the National Scientific Council of the Republic of China with grant no. NSC88–2313–B002–007.



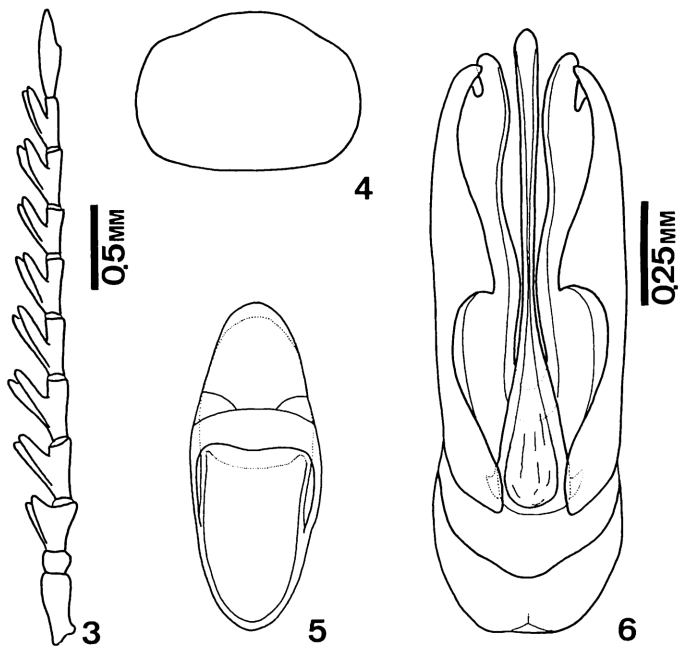
Figs. 1–2. Habitus —— 1, *Cyphonocerus jenniferi* sp. nov., ♂; 2, *Drilaster atricollis* NAKANE, ♀. Note their similar body size and coloration. Scale=2 mm.

Cyphonocerus jenniferi JENG et M. SATÔ, sp. nov.

(Figs. 1, 3–6)

Type locality. Between Tsuen and Bilu Sacred Tree (ca. 2,050 m above sea-level), Hwalien County, eastern Taiwan.

Description. BL: 7.0–7.8 mm, BW: 2.9–3.3 mm. Coloration black, slightly shining, except pronotum with yellowish brown margins and elytra orange red throughout (Fig. 1). Epicranium densely and coarsely punctate. Antennal segments 3–10 somewhat stout, each with a pair of rami; antennomere 3 with rami short, nearly serrate laterally; antennomere 4–10 with rami longer than their own segments; last segment longer than the preceding one by about 1.5 times (Fig. 3). Pronotum 1.6–1.7 times broader than long, with apical margin weakly rounded and hind angles prominently expanded; surface coarsely and densely punctate and covered with dense pubescence; central disc weakly convex. Scutellum sparsely punctate in basal 1/4 but coarsely in the remaining part. Elytra finely but densely punctate, clothed with suberect pubescence; margins reflexed and elytral carinae distinct. EL/EW=2.0, EL/PL=4.2−4.4. T8 (Fig. 4) arched



Figs. 3–6. Morphological characters of *Cyphonocerus jenniferi* sp. nov. —— 3, Antenna of male, left side view; 4, abdominal tergite 8 of male, dorsal view; 5, aedeagal sheath, dorsal view; 6, male genitalia, dorsal view. Figs. 3–5 in the same scale.

and slightly sinuate at apex, with a pair of obscure luminous organ laterally.

Aedeagal sheath (Fig. 5) about 1.5 mm long, 0.6 mm wide, oblong. TS about a half as long as sheath, with T10/T9 in length about 3.0. Male genitalia (Fig. 6) about 1.4 mm long. Medial lobe slender in apical 2/3 and thence broadened toward base. Paramere a little shorter than medial lobe, bifurcate apically; outer fork acute and inner fork blunt; inner sides of parameres sharply curved in apical half. Basal piece crescent-shaped dorsally, about 1/4 as long as paramere, slightly emarginate at apex.

Female. Unknown.

Type series. Holotype ♂ (NMNS), Tsuen–Bilu, 2,050 m a.s.l., Hwalien Co., Taiwan, 25, 26–V–1999, sweeping by M. L. JENG & J. LAI. Paratypes: 8♂♂, data identical with the holotype (NMNS, NTU); 1♂, ditto, M. SATÔ leg. (NWU); 8♂♂, Lalashan, 1,500–1,700 m a.s.l., Taoyuan Co., Taiwan, 22–V–1999, C. F. LEE leg. (NTU), 7♂♂, ditto, M. SATÔ leg. (NWU).

Diagnosis. This species is similar to *C. taiwanus* NAKANE. Like many other cases of the genus, it is very difficult to distinguish their male genitalia from each other. However, they can be easily distinguished by their coloration: *C. jenniferi* has black pronotum and orange red elytra which is unique in *Cyphonocerus*, while *C. taiwanus* has dark brown pronotum and yellowish brown elytra. In addition, the antennal

rami of *C. jenniferi* are more robust than those of *C. taiwanus*, and the antennomere 3 of *C. jenniferi* is nearly serrate laterally rather than pectinate as in *C. taiwanus*.

Ecological remarks. This species is seen flying around or resting on ground vegetation beside broadleaved forests at the type locality. The males usually erect their antennae in a V-shape to detect scents (maybe sex pheromone emitted by female) when resting on leaves. A sympatric firefly species, *Drilaster atricollis* NAKANE (Fig. 2) which belongs to the Ototretinae, has very similar coloration and size with *C. jenniferi* and is very common at the locality. In the laboratory, we observed that several males of *C. jenniferi* kept trying to copulate with a female of *D. atricollis* in a transparent plastic container (8 cm in diameter and 5 cm in height) and lasted for 2–3 days. This suggests that vision may play an important role in *C. jenniferi* for short-distance recognition.

Distribution. This species is known from Taiwan and distributed in northern and central montane areas (Taoyuan and Hwalien Counties) ranging from 1,500–2,100 m above sea-level.

Flight periodicity. May (and June?).

Etymology. We are pleased to name this new firefly after Miss Jennifer LAI who found the species together with us.

Remarks

The key of JENG *et al.* (1998) is modified to include the new species:

4. Coloration of pronotum more or less darker or lighter than that of elytra . . . . . 5.
— Coloration of pronotum and elytra almost the same . . . . . 10.
5. Pronotum yellowish brown, elytra dark brown or brownish black . . . . . *C. okinawaus* NAKANE.
— Pronotum dark or blackish brown, elytra yellowish brown or orange red . . . . . 7.
7. Elytra orange red . . . . . *C. jenniferi* sp. nov.
— Elytra yellowish brown . . . . . 8.

The original couplet 7 is modified into 8, 8 into 9 and 9 into 10.

要　約

鄭　明倫・楊　平世・佐藤正孝：台湾産クシヒゲボタル属の追加新種．—— わたしたちは，台湾および日本のクシヒゲボタル属*Cyphonocerus*を昨年まとめたが，1999年の調査で台湾の北部中央高地帯でさらに1新種を発見したので，雄だけではあるがここに記載した．なお，同時に採集した色彩と体長がほぼ同じの*Drilaster atricollis* NAKANE♀を同じ容器に入れておいたら交尾行動を試みたのは興味深い．

Reference

JENG, M. L., P. S. YANG & M. SATÔ, 1998. The genus *Cyphonocerus* (Coleoptera, Lampyridae) from Taiwan and Japan, with notes on the subfamily Cyphonocerinae. *Elytra*, *Tokyo*, **26**: 379–398.

Elytra, *Tokyo*, **27** (2): 409–416, November 13, 1999

New or Little-known Elateridae (Coleoptera) from Japan, XL

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Abstract Three new species of elaterid beetles are described and illustrated from Japan. They are named *Rismethus ryukyuensis*, *Corymbitodes kiiensis* and *Melanotus* (*Melanotus*) *kumensis*.

In the present study, I am going to describe three new species of elaterid beetles from Japan. The holotype of each species to be described in this paper is preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my sincere gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kindly reading the manuscript and giving me useful suggestions, and to Miss VON HAYEK of the former chief of the Department of Entomology, the Natural History Museum, London, for the loan of the specimens of *Rismethus scobinula* from China (Shanghai and Hong Kong), and Dr. M. SATÔ of Nagoya, Messrs. H. ARIMOTO of Osaka, T. FUKAISHI of Ishigaki-jima Is., and Y. HIRAMATSU of Wakayama for their kindness in offering the specimens used in this study.

Rismethus ryukyuensis sp. nov.

(Fig. 1 A–J)

Meristhus scobinula: CANDÈZE, 1873, Mém. Soc. Sci. Liège, (2), **5**: 5 (Japan) [nec CANDÈZE, 1857].
Meristhus scobinula: LEWIS, 1894, Ann. Mag. nat. Hist., (6), **13**: 30 (Nagasaki) [nec CANDÈZE, 1857].
Rismethus scobinula: HAYEK, 1973, Bull. Br. Mus. (n. H.), Ent. Suppl., (20): 238. (Designation of the lectotype from China).

E. CANDÈZE (1857) described a new species, *Meristhus scobinula*, from China and Mexico. In 1973, he recorded this species from Japan (Nagasaki?) and later, G. LEWIS (1894) also recorded it from Japan (Nagasaki). Recently, I was able to study some specimens of this species from China and Hong Kong determined by HAYEK (1973). As the result, it has become apparent that the Japanese species is evidently different from the Chinese and is new to science as described below.

Male. Length 2.3 mm, width about 1 mm. Body small and subovate, obviously convex above; surface rather opaque, blackish brown to dusky brown except for hind

angles of pronotum, basal areas of elytra and some parts of ventral surface of body, which are more or less dull brown; antennae and legs yellowish brown; vestiture pale yellow and pile-like.

Head gently convex between eyes; surface coarsely and deeply punctate; clypeal margin only ridged over antennal insertions, broadly obliterated at middle (Fig. 1 E). Antenna short, not reaching posterior angle of pronotum; 2nd segment subcylindrical, 3rd clearly smaller than 2nd which is subquadrate (Fig. 1 F), distinctly serrate from 4th to 10th segments.

Pronotum subquadrate, with sides rounded at middle; disc dome-like, deeply, coarsely and evenly punctate (Fig. 1 G); each posterior angle obliquely truncated (Fig. 1 H↑), without carina above; each anterior angle distinctly acuminate anteriad. Prosternal process slightly incurved posteriad and bluntly pointed apicad (Fig. 1 D). Each propleuron bearing a shallow tarsal concavity as illustrated (Fig. 1 C↑). Scutellum subquadrate, wider than its length, bearing a short longitudinal elevation at base.

Elytra about 1.4 times as long as its basal width, with sides of basal halves rounded, thence convergent towards apices which are normally pointed; striae rather mal-defined, with intervals bearing a row of pile-like setae.

Aedeagus (in dorsal aspect) as illustrated; median lobe subcylindrical and obtusely rounded apicad; apical portion of each lateral lobe subtriangular, with outer angle sharply pointed laterad (Fig. 1 I–J).

Female. Very similar to male and difficult to distinguish from it without examination of genitalic apparatus.

Holotype: ♂, Nakasuji on Ishigaki-jima Is., 4–IV–1997, T. FUKAISHI leg. Paratypes: 40 exs., Akagina on Amami-Ôshima Is., 30–IV–1984, H. ARIMOTO leg.; 15 exs., Kometoku on Tokuno-shima Is., 1–IV–1975, H. ARIMOTO leg.; 2 exs., Hateruma-jima Is., 13~16–VIII–1968, H. ÔHIRA leg.; 3 exs., Katabaru-hama on Yonaguni-jima Is., 27–VIII–1994, M. SATÔ leg.

Distribution. Kyushu (Nagasaki) and the Ryukyu Islands, Japan.

This new species is closely allied to *R. scobinula scobinula* (CANDÈZE, 1857) from China, but can be distinguished from the latter by the smaller body, and more rounded sides of pronotum with more clearly and acutely pointed anterior angles.

Corymbitodes kiiensis sp. nov.

(Fig. 2 A–K)

Male. Length 9–9.5 mm, width about 2 mm. Body elongate, almost parallel-sided and gently convex above; surface shining with a dark brassy lustre except for apical portion of prosternal process and some posterior marginal parts of propleura of prothorax and epipleural areas of elytra more or less dusky brown; antennae black to blackish brown; legs yellowish brown (sometimes femora and tarsi dusky brown); vestiture cinereous, fine and semidecumbent.

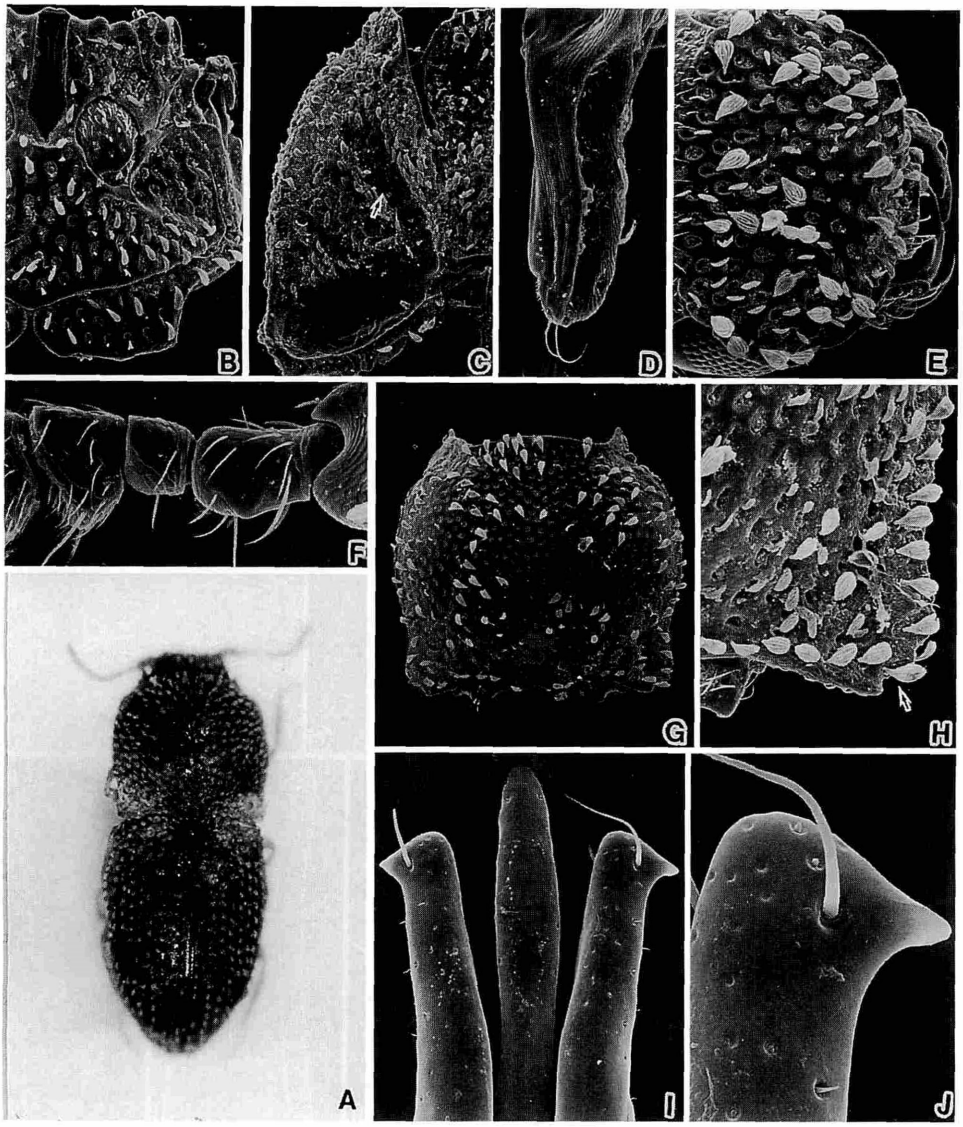

Fig. 1. *Rismethus ryukyuensis* sp. nov., male, from Ishigaki-jima Is. —— A, Holotype; B, left half of metasternum and basal plate, ventral aspect; C, right propleuron of prothorax, ventral aspect; D, prosternal process, lateral aspect; E, head, dorsal aspect; F, 2nd to 4th segments of right antenna; G, pronotum, dorsal aspect; H, right hind corner of pronotum; I and J, apical portion of aedeagus, dorsal aspect.

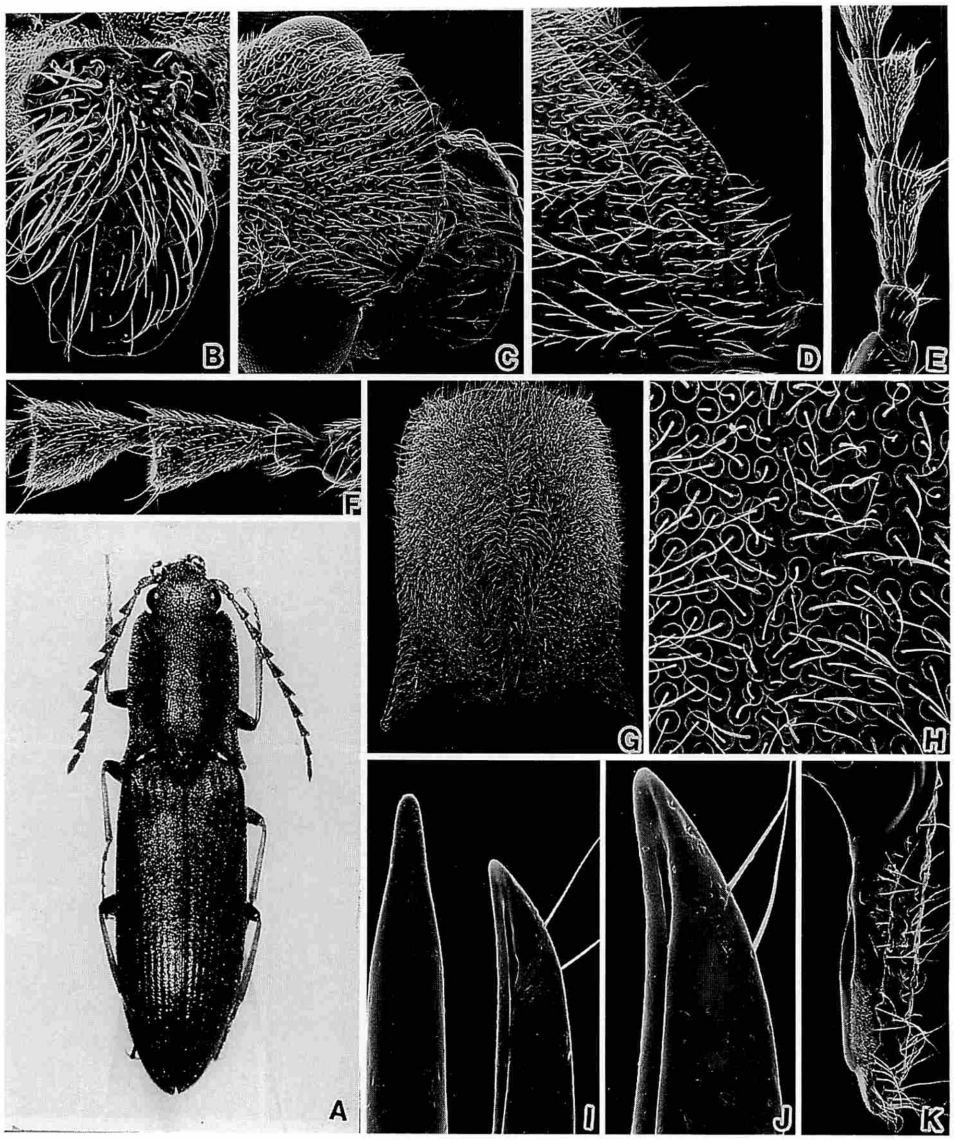

Fig. 2. *Corymbitodes kiiensis* sp. nov., male (except for E which is of a female), from Mt. Ôishi-yama in Wakayama Pref. —— A, Holotype; B, scutellum; C, head and clypeal margin, dorso-lateral aspect; D, left basal plate, ventral aspect; E and F, 2nd to 4th segments of antenna; G, pronotum, dorsal aspect; H, some punctures on the disc of pronotum; I and J, apical portion of aedeagus, dorsal aspect; K, prosternal process, lateral aspect.

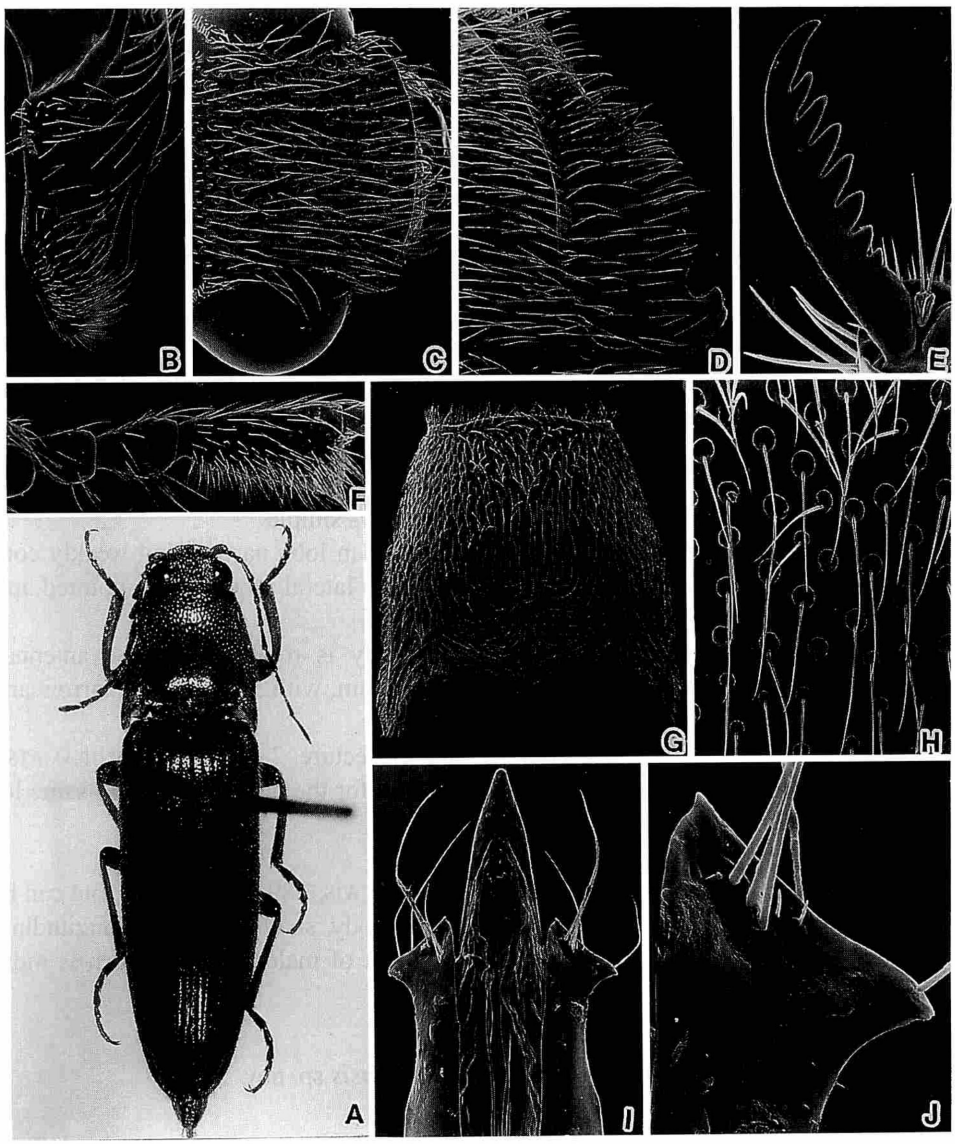

Fig. 3. *Melanotus* (*Melanotus*) *kumensis*, male, from Kume-jima Is.—— A, Holotype; B, prosternal process, lateral aspect; C, head, dorsal aspect; D, left basal plate, ventral aspect; E, ungula of hind leg; F, 2nd to 4th segments of antenna; G, pronotum, dorsal aspect; H, some punctures on the disc of pronotum; I and J, apical portion of aedeagus, ventral aspect.

Head gently convex between eyes, flattened between antennae; surface coarsely and densely punctate; clypeal margin transverse, depressed and obliterated at middle (Fig. 2 C). Antenna elongate, extending beyond posterior angle of pronotum at least by apical segment; 2nd segment small and subglobose, 3rd subtriangular and a little longer than 4th, 3rd to 4th segments clearly serrate (Fig. 2 F).

Pronotum subquadrate, with sides almost parallel in middle, slightly sinuate just before posterior angles (Fig. 2 G); disc gently convex, densely and coarsely punctate (Fig. 2 H), usually bearing a shallow and broad median longitudinal channel from base to near anterior margin (Fig. 2 G); posterior angles produced postero-laterad, each with an obliterated carina above. Scutellum lingulate, flattened and pubescent (Fig. 2 B). Prosternal process in lateral aspect as illustrated (Fig. 2 K).

Elytra about 2.7 times as long as its basal width, with sides almost parallel in basal halves, thence weakly rounded and gradually convergent towards apices which are ordinarily pointed; striae well defined and deeply punctate; intervals gently elevated, punctate, irregularly and transversely rugose. Basal plates each narrow, gradually narrowing outwards (Fig. 2 D). Legs slender, claws simple.

Aedeagus (in dorsal aspect) as illustrated; median lobe narrow and weakly constricted towards apex which is obtusely pointed; each lateral lobe narrow, pointed apically, with outer margin rounded (Fig. 2 I–J).

Female. Very similar to male, but the body is robuster and the antennae shorter, not attaining to the posterior angle of pronotum, with 3rd segment narrow and longer than 4th (Fig. 2 E).

Holotype: ♂, Mt. Ôishi-yama in Wakayama Prefecture, 2–V–1996, H. HIRAMATSU leg. Paratypes: 40♂♂, 2♀♀, same collecting data as for the holotype; 10♂♂, same locality, 1–V–1997, H. HIRAMATSU leg.

Distribution. Honshu, Japan.

This new species is closely allied to *C. gratus* LEWIS, 1894 from Japan, but can be distinguished from the latter by the dark aeneous body, shallow median longitudinal canaliculation of pronotum and shorter 3rd segment of male antenna which is more gently serrate from the 4th to the 10th segments.

Melanotus* (*Melanotus*) *kumensis sp. nov.

(Fig. 3 A–J)

Male. Length 13.5–16 mm, width 3.5–4 mm. Body slender and fusiform, moderately convex above; surface shining, entirely castaneous-brown except for antennae and legs light brown; vestiture pale yellow and semidecumbent, becoming longer on head and pronotum.

Head, gently convex between eyes, more or less longitudinally elevated between antennae; surface coarsely and rather densely punctate; clypeal margin well ridged, rounded at middle (Fig. 3 C). Antenna elongate, extending beyond posterior angle of

pronotum at least by 1.5 apical segments (Fig. 3 A); 2nd segment small and almost globose, 3rd subclavate and about 1.4 times as long as 2nd, 4th a little longer than these two preceding segments (Fig. 3 F), 3rd to 10th segments moderately serrate.

Pronotum trapezoidal, widest across base, with sides weakly sinuate just before posterior angles, thence gradually convergent towards anterior angles (Fig. 3 G); disc gently convex, moderately densely and evenly punctate, without median longitudinal smooth line or channel in middle (Fig. 3 H); posterior angles projecting posteriad, each with a distinct carina above. Scutellum flattened and subquadrate. Prosternal process in lateral aspect not excavated behind procoxal cavities (Fig. 3 B).

Elytra about 2.7 times as long as its basal width, with sides almost parallel in basal halves, thence gradually convergent towards apices which are normally pointed; striae defined, regularly and deeply punctate; intervals gently elevated, punctulate and slightly rugose. Legs slender, claws pectinate, each with 6 or 7 denticles (Fig. 3 E).

Apical portion of aedeagus (in ventral aspect) as illustrated; median lobe weakly arcuate near apex which is obtusely pointed; apical portion of each lateral lobes subtriangular, with postero-lateral angle sharply pointed laterad (Fig. 3 I–J).

Female. Unknown.

Holotype: ♂, Kume-jima Is. of the Ryukyu Islands, 1～3–V–1996, H. Ôhira leg. Paratypes: 6♂♂, same collecting data as for the holotype. All the specimens are captured by a light trap.

Distribution. Kume-jima Is. of the Ryukyu Islands, Japan.

This new species is closely allied to *M.* (*M.*) *okinawensis* Ôhira, 1982 from Okinawa-hontô Island of the Ryukyu Islands, but can be distinguished from the latter by the smaller and slenderer body, shorter 3rd segment of antenna, and differently shaped aedeagus.

要　　約

大平仁夫：日本産コメツキムシ科の新種，XL. —— 本報告では3新種を記載した．

Rismethus ryukyuensis Ôhira（ケシツブスナサビキコリ）．体長は2.3 mm内外の小型種で，日本からE. Candèze (1873)が*Meristhus scobinula*（現在は*Rismethus*属に含められている）として記録してから今日まで，長い間この種名が使用されてきたが，基産地のChina産のものとは別種であることが判明した．九州は長崎からE. Candèze (1873)やG. Lewis (1894) の記録があるのみであるが，屋久島から与那国島にいたる琉球列島には各地に広く分布し，記録も多い．

Corymbitodes kiiensis（キイホソヒラタコメツキ）．体長は9.5 mm内外でやや暗い真鍮色の金属光沢を有する種である．一般外形は*C. obscuripes*（コゲチャホソヒラタコメツキ）や*C. gratus*（ドウガネヒラタコメツキ）との中間的な特徴を有しているが，触角の第2–3節や前胸背板や雄交尾器などの形態によって識別できる．

Melanotus (*Melanotus*) *kumensis*（クメカンシャクシコメツキ）．体長は15 mm内外．一般外形は*M.* (*M.*) *okinawensis*（オキナワカンシャクシコメツキ）に類似しているが，触角の第2, 3節，前胸腹板突起，雄交尾器などの形態によって識別できる．雌は未知で，本種は久米島以外から

はまだ知られていない.

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Elytra, Tokyo, **27** (2): 416, November 13, 1999

Glipostena pelecotomoidea (PIC) (Coleoptera, Mordellidae), Newly Recorded from the Tokara Islands of the Northern Ryukyus

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The largest mordellistenine mordellid in Japan, *Glipostena pelecotomoidea* (PIC), has commonly been known from Honshu, the Ryukyus (Yaku-shima Is., Amami-Oshima Is., Okinawa Is., Ishigaki Is.) and Taiwan, according to HATAYAMA (1985, Coleopt. Japan Col., Osaka, **3**: 387–399). Recently, I have examined one specimen of this species collected on Nakano-shima Is. of the Tokara Islands. It seems to me that this is the first record of the mordellid from the Tokara Islands. The collecting data are as given below:

1♂, Nakano-shima Is., Tokara Isls., N. Ryukyus, 12~26–VII–1997, T. HATTORI leg. (in my coll.).

I am grateful to Mr. T. HATTORI of Yokohama for offering me the valuable specimen.

Elytra, *Tokyo*, **27** (2): 417–428, November 13, 1999

Studies on the Buprestidae (Coleoptera) of Asia

3) Notes on *Dicerca corrugata* and Description of its New Relative

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Abstract *Dicerca corrugata* FAIRMAIRE, 1902 from Yunnan Province of Southwest China is reviewed, and its relative, *Dicerca kurosawai* sp. nov. is described from Taiwan. The latter resembles the former in general appearance, but is distinguished by having the male tibiae without spines at the inner sides, and the median carina of the pronotum not reaching the anterior margin.

MIWA and CHÛJÔ (1940) noted that "Dr. JAN OBENBERGER also introduced to us the Formosan species surely corresponds to *D. corrugata*." Since then, *Dicerca corrugata* FAIRMAIRE, 1902 has been considered to occur in Taiwan (Formosa), other than Yunnan Province in Southwest China in which lies the type locality of the species.

We had an opportunity to examine several specimens of the so-called *D. corrugata* collected in Taiwan. As the result, it has become apparent that the Taiwanese specimens belong to a new species closely related to *D. corrugata*. In this paper, we are going to redescribe true *D. corrugata* and describe the new species under the name of *D. kurosawai* sp. nov.

Before going further, we wish to express our sincere thanks to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo for his kindness in critically reading the original manuscript and offering invaluable suggestions, and to Dr. Yoshihiko KUROSAWA, former director of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, for his constant guidance throughout this study. Thanks are also due to Mr. Hyôji TORIGAI of Gifu Prefecture and Mr. Chinchi LUO of Nantou Hsien, Taiwan, and Dr. Zhong-Lian PENG of Jiangxi Province, China, for their kind offer of valuable materials, and to Dr. Sadahiro OHMOMO of Ibaraki Prefecture, for his kind loan of material used in this study. We are also grateful to Dr. Svatopluk BÍLÝ, National Museum, Praha, for his kind confirmation of the identity of the redescribed specimens.

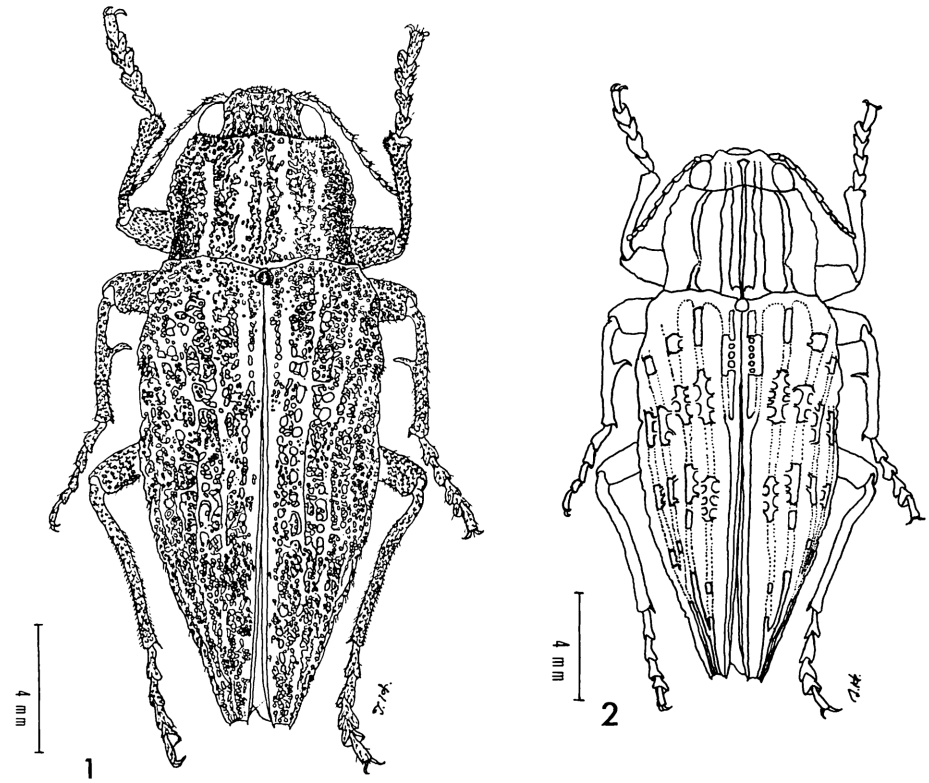
Dicerca corrugata FAIRMAIRE, 1902

(Figs. 1–9)

Dicerca corrugata FAIRMAIRE, 1902, Bull. Soc. ent. Fr., **1902**, p. 268. —— RICHTER, 1952, Fauna SSSR, Nasekomye Zhestkokrylye, **13** (4), p. 132. —— DESCARPENTRIES & VILLERS, 1963, Revue fr. Ent., **30**, p. 263. —— Y. KUROSAWA, 1970, Coleopt. News, Tokyo, (8), p. 2. —— TÔYAMA, 1986, Gekkan-Mushi, Tokyo, (189), p. 18, pl. 1, fig. 8.

Male. Body robust, convex and attenuate posteriorly; head, pronotum, elytra and ventral surface black with cupreous shimmer though punctate parts are cupreous with cuperous shimmer; antennae cupreous though the 4th to the last segments are black at each posterior lower corner; legs cupreous except for tarsi which are black with purplish shimmer.

Head narrower than the base of pronotum; vertex broad, declivous anteriorly, with a median carina reaching the middle of frons, the carina interiorly with a narrow groove, and with a pair of broad costae beside the carina; frons feebly convex in upper



Figs. 1–2. *Dicerca corrugata* FAIRMAIRE, ♂; 1, dorsal view; 2, costal parts in dorsal view. Notes for Fig. 2: Dotted lines represent costal parts; solid lines represent elevated parts of elytra, and costal parts of head and pronotum.

half and feebly concave in lower half; eyes moderately convergent above; clypeal suture almost carinate, feebly arcuate upwards; clypeus transverse, about 6.1 times as wide as long, with anterior margin arcuately emarginate though shallowly excavated at the middle; epistome visible; each antennal cavity large, surrounded by trapezoidal margin which is elevated except for the bottom; a small cavity with a tubercle present on upper lateral corner of the former trapezoidal margin; surface coarsely punctate, the punctures on frons and vertex reticulate and confluent, those on clypeus small, each with a short semirecumbent whitish seta.

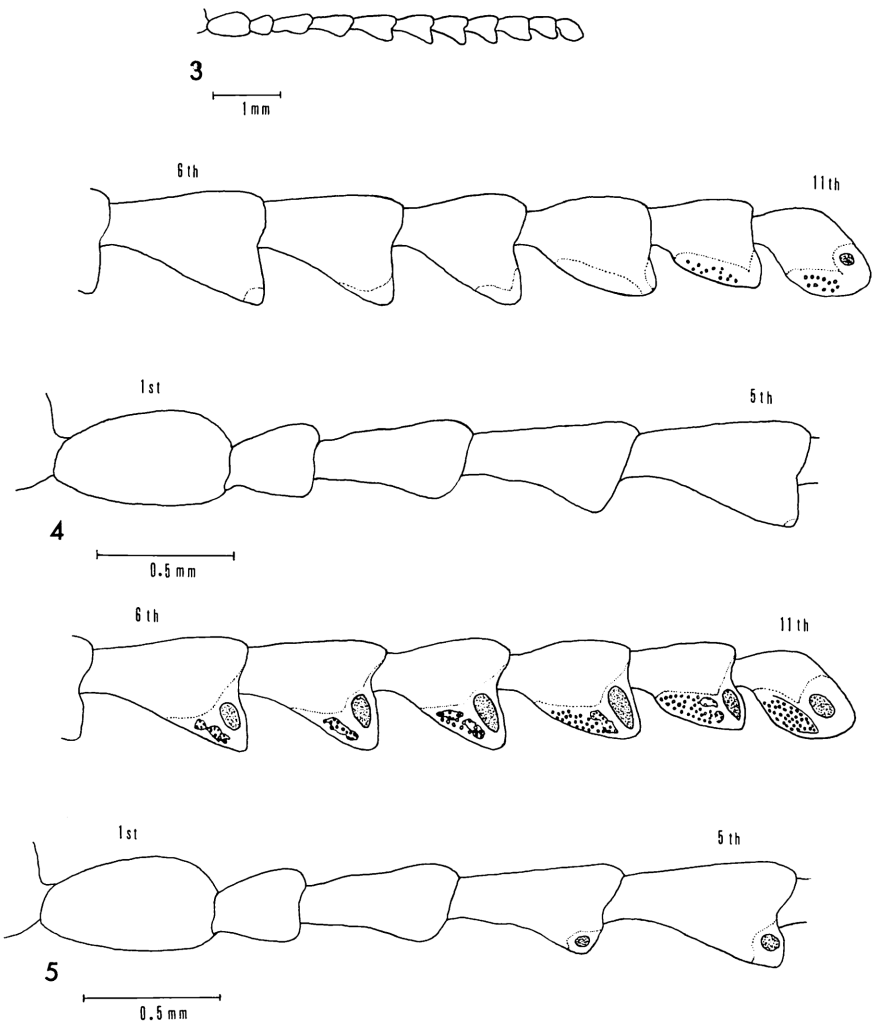
Antennae compact, reaching anterior 1/3 of pronotum, and serrate from 4th segment; 1st segment fusiform, 2nd short and globular, 3rd obconical, 4th subtriangular, 5th to 10th each triangular, 11th parallelogrammatic; length (width) of each segment as follows (the length is of the stem part of each segment and the width is the maximum width): 6.0 (3.3), 3.0 (2.3), 5.3 (2.3), 6.0 (3.0), 6.0 (3.2), 5.3 (3.3), 5.0 (3.3), 4.3 (3.3), 4.0 (2.7), 3.7 (2.3), 3.7 (2.3) (in 0.1 mm); sensory pores concentrated in each socket on apico-internal surface of each of the 4th to apical segment, and on apico-external surface of the apical one; different kind of pores scattered on inner surface under 6th to apical segments and on outer surface also under 10th and apical segments (they are probably sensory pores).

Pronotum transverse, about 1.5 times as wide as long, widest just at the middle; anterior margin 0.72 times as wide as posterior margin, bisinuate with median lobe broadly and feebly produced; posterior margin bisinuate, obtusely produced at middle, shallowly and arcuately emarginate at lateral 2/3 from ante-scutellar part; posterior angles rather acute; sides sinuate, convergent from base to basal 1/4, then gradually, arcuately divergent to the widest part and arcuately convergent again to anterior angles; anterior angles acute in dorsal view and obtusely produced in lateral view; marginal costae elevated, sinuate, and feebly arcuate downwards at anterior 1/3 and arcuate upwards at basal 1/5 in lateral view; prehumeral costae above marginal costae arcuate from base to anterior 1/3, and not conjoint marginal costae; disc convex, obliquely impressed from posterior 1/3 to ante-lateral direction on lateral 1/2; median carina entire; two longitudinal costae on each side present at lateral 1/5 and 7/12 from ante-scutellar part, respectively; surface irregularly punctate except on costae and carina, the punctures reticulate and confluent, becoming coarser and more reticulate towards the lateral sides, each with a short semi-recumbent whitish seta; ante-scutellar part transversely with two foveoles.

Scutellum small, wider than long, trapezoidal with round corners, and depressed in the middle.

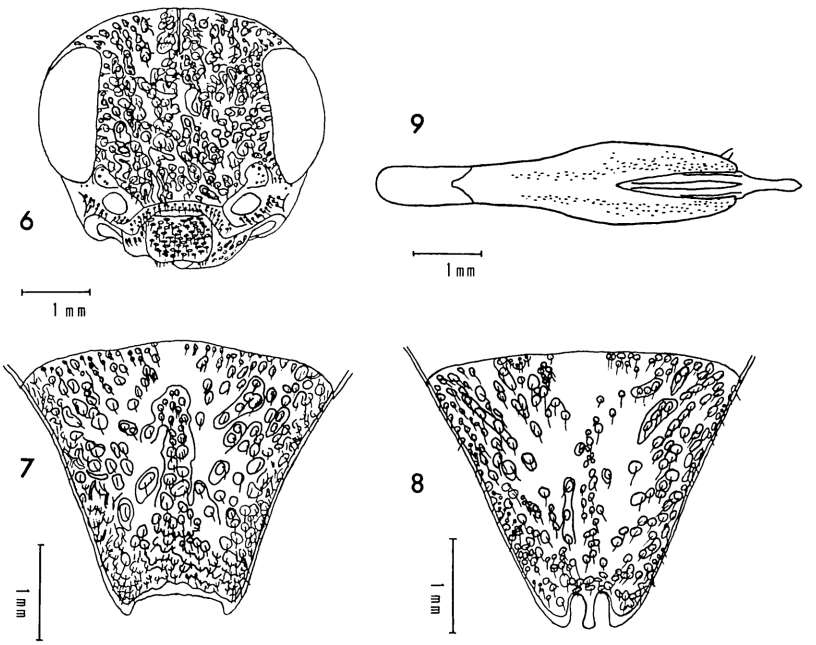
Elytra elongate, robust, 3.5 times as long as pronotum, 1.3 times as wide as pronotum, 1.9 times as long as the widest part across anterior 1/5 of elytral length[1)]; humeri obtusely angulate; sides expanded by humeral prominences at basal 1/14, then linearly expanded to the widest part which is arcuate, then feebly sinuate and feebly

1) The length of the elytra is measured from the tip of the scutellum to the apices.



Figs. 3–5. *Dicerca corrugata* FAIRMAIRE, ♂; 3, left antenna; 4, outer side of left antenna; 5, inner side of left antenna. Notes for Figs. 4–5: 1st, 5th, 6th and 11th denote the segment numbers.

convergent to the middle, and sinuously convergent to apices which are furcate; each apex obliquely truncated with a spine at each angle; sutural margins entirely costate and elevated from middle to apices; outer margins costate from bases to apices and serrate from basal 2/5 to apices by punctual depression; each basal lobe arcuately produced, feebly, obtusely angulate at basal emargination of pronotum, and transversely depressed in outer half just behind basal margin; each elytron with five costae as follows: all traceable, and elevated costal parts distributed on four transverse areas, obsolete on the remaining area by uniformly distributed punctures, 1st transverse area situ-



Figs. 6–9. *Dicerca corrugata* FAIRMAIRE (6, 7 & 9: ♂), (8: ♀); 6, head in frontal view; 7–8, last visible abdominal sternite; 9, male genital apparatus in dorsal view.

ated at basal 1/10 (1/10 of elytra in length) though disappearing in two specimens, 2nd situated at basal 1/4 (1/7 of elytra in length), 3rd present just behind the middle (1/10 of elytra in length), 4th emerged from apical 1/4 and continuing to apex; 1st costa conjoint with sutural margin at basal 2/7, 2nd running from base to apex, though obsolete by punctures at three or four parts, 3rd running from base to apical 1/20 (conjoint with 2nd there) though obsolete at three or four parts, 4th running from humeral prominence to apical 1/4 (almost conjoint with 5th there) though obsolete from the beginning to basal 1/6 by reticulated punctures and also obsolete at three or four parts behind there, 5th running from underside of humeral prominence to apex though obsolete from the beginning to basal 2/7 by reticulated punctures and also obsolete at three parts behind there, 3rd, 4th and 5th costae ridged in the transverse area; five intercostal intervals present as follows: inner two traceable though not costate, the remaining outer three inconspicuous by uniformly distributed punctures, 1st running from base to apex, 2nd running from base to the conjoint part of 2nd and 3rd costae, 3rd running from humeral prominence to apical 1/5, 4th running from underside humeral prominence to apical 1/3 though obsolete by reticulated punctures, 5th running from just the middle to apical 1/4 though obsolete by reticulated punctures and invisible from above by inclined side; surface scattered with round punctures all over, which become coarser, denser and more confluent towards sides, each with a semi-recumbent whitish

seta; punctures on striae conspicuous, without setae, deep, coarse, elliptical in the transverse area, and obsolete in the remainder.

Prosternum convex, gradually planate from sides to the middle, with linear anterior margin; prosternal process longitudinally and shallowly sulcate on median line; sides feebly narrowed by frontal coxae, smoothly produced behind them, then attenuate to apex which is rounded and arcuately emarginate at both sides; surface confluently and reticulately punctate, the punctures becoming coarser and more confluent towards sides, clothed with long recumbent whitish hairs.

Mesosternum divided, reticulately punctate.

Metasternum reticulately punctate; median sulcation entire and becoming narrower towards apex with median longitudinal carina, which is also provided with a median longitudinal groove behind transverse line.

Middle coxae a little more widely separated from each other than in anterior ones. Posterior coxae arcuately emarginate at posterior margins and produced posteriorly at the lateral sides.

Abdomen longitudinally sulcate in the middle of 1st segment; last visible abdominal sternite trapezoidally emarginate at apex and the bottom shallowly excavated; surface reticulately and confluently punctate, more reticulate and more confluent towards sides, each puncture with a rather long recumbent whitish hair.

Legs rather long, robust, densely clothed with whitish setae; all femora fusiform; protibia straight, dilated externally at apex; mesotibia straight with a thin plate at inner side of anterior 2/5, which looks like a spine in dorsal view, and small spines arranged behind the plate; metatibia arcuate interiorly; pro- and mesotarsal segments short, almost equal in length to one another; metatarsal segments rather long with the length order as 1st>2nd>3rd>4th.

Male genital apparatus slender; parameres arcuately emarginate besides central prominence at base, then feebly and arcuately expanded on both sides, with each apex curved inwards and obtusely angulate at inner angle; aedeagus linearly produced towards apex which is rounded, sinuate at both sides.

Female. Pronotum with 3rd costa emerged at lateral 4/5 from ante-scutellar part on each side. Prosternum with prosternal process flattened though sulcate at apex, and sparsely punctate; each puncture with a rather long hair. Abdomen with last visible abdominal sternite rounded at apex with a pair of U-shaped emarginations, with the intermediate lobe rounded at the tip. Legs with mesotibia feebly sinuate on inner side, widest at anterior 3/7, and bearing small spines arranged behind the widest part.

Length: 17.2–19.7 mm (mean 18.4 mm) (♂); 20.6 mm (♀).

Width: 6.8–7.8 mm (mean 7.1 mm) (♂); 7.7 mm (♀).

Specimens examined. 1♂, Yunnan Prov., China: 1♂, Heilong-tan, Yunnan Prov., China; 1♂, China; 1♀, Simáo, Yunnan Prov., China, 4–VIII–1979.

Host plant. Unknown.

Notes. Dr. Svatopluk BÍLÝ kindly identified a pair of the specimens used for our redescription of *D. corrugata* with the following comment: "Years ago I studied the

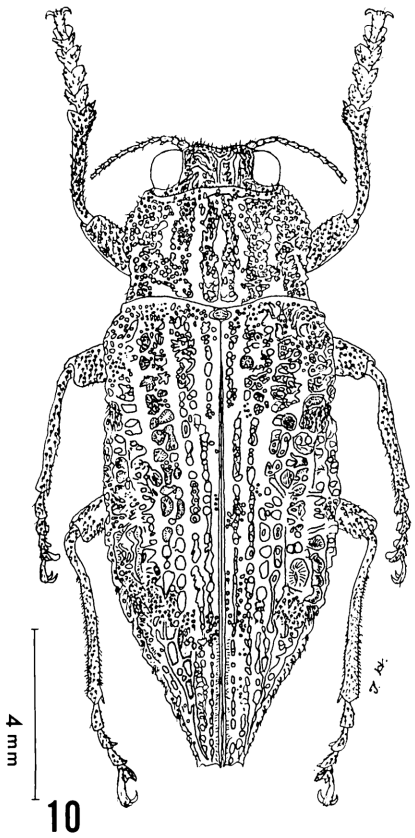
holotype of *Dicerca corrugata* in Paris and I havd two specimens compared with the holotype. I can assure you, your specimens on photographs quite correspond with the holotype. So you can be sure they are well-determined."

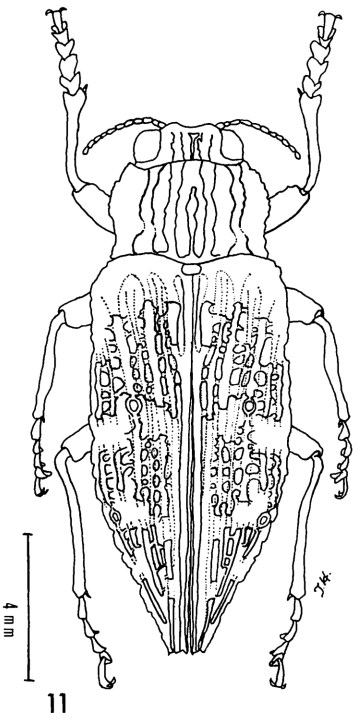
Dicerca kurosawai sp. nov.

(Figs. 10–18)

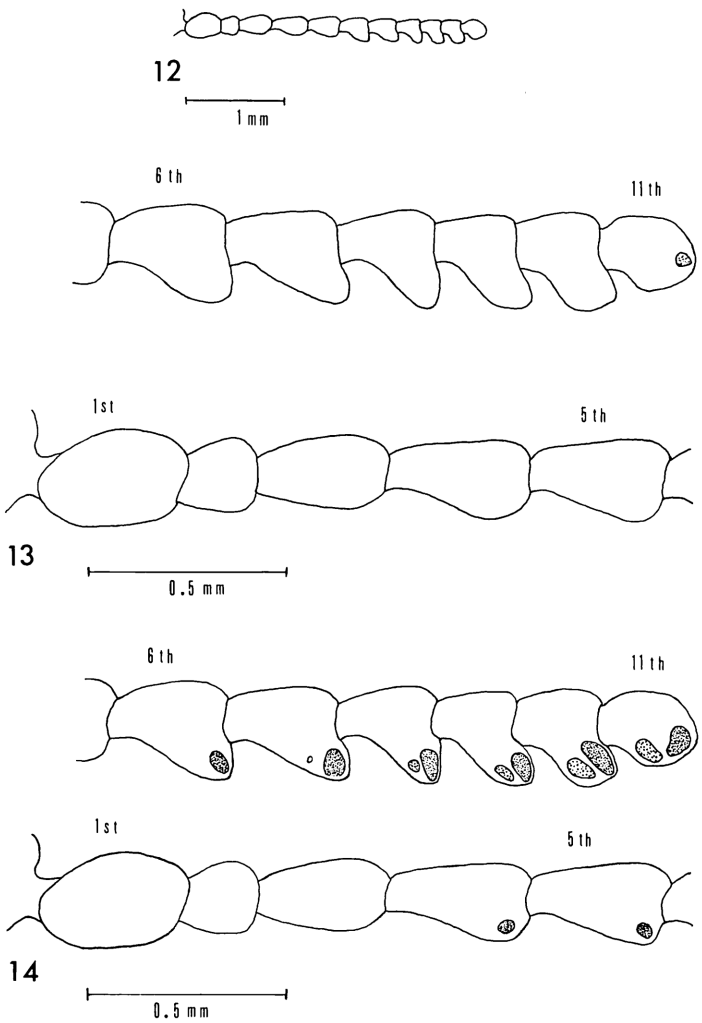
Dicerca corrugata: MIWA & CHÛJÔ, 1938, Ent. Wld., Tokyo, **6**, pl. 276, in No. 58; 1940, Nippon no Kôchû, Tokyo, **3**, p. 63, pl. 7, fig. 9. —— TÔYAMA, 1986, Gekkan-Mushi, Tokyo, (189), p.18, pl.1, fig. 9. [Nec FAIRMAIRE, 1902.]

Holotype (male). Coloration of body as in *D. corrugata*; head, pronotum and elytral surface as in *D. corrugata* though punctate parts of them, venter and antennae are cupreous with aeneous shimmer; legs with black tarsi which are provided with bluish shimmer.





Figs. 10–11. *Dicerca kurosawai* sp. nov., ♂, holotype; 10, dorsal view; 11, costal parts in dorsal view. Notes for Fig. 11: Dotted lines represent costal parts; solid lines represent elevated parts of elytra, and costal parts of head and pronotum.



Figs. 12–14. *Dicerca kurosawai* sp. nov., ♂, holotype; 12, left antenna; 13, outer side of left antenna; 14, inner side of left antenna. Notes for Figs. 13–14: 1st, 5th, 6th and 11th denote the segment numbers.

Head as in *D. corrugata*; clypeal suture rather carinate, obsolete, feebly arcuate upwards; clypeus transverse, about 5.5 times as wide as long, with anterior margin shallowly and arcuately emarginate; epistome invisible.

Antennae as in *D. corrugata*; 1st segment stout, 2nd short and globular, 3rd obconical, 4th subtriangular, 5th to 9th each triangular, 10th parallelogrammatic, 11th semicircular; length (width) of each segment as follows (the length is of the stem part of each segment and the width is the maximum width): 3.5 (2.3), 1.9 (1.8), 3.3 (1.5), 3.5 (1.9), 3.5 (1.9), 3.0 (2.1), 2.8 (2.0), 2.5 (2.3), 2.1 (2.3), 2.0 (2.1), 2.4 (1.9) (in 0.1 mm); different kind of sockets visible on inner surface of the 7th to apical segments

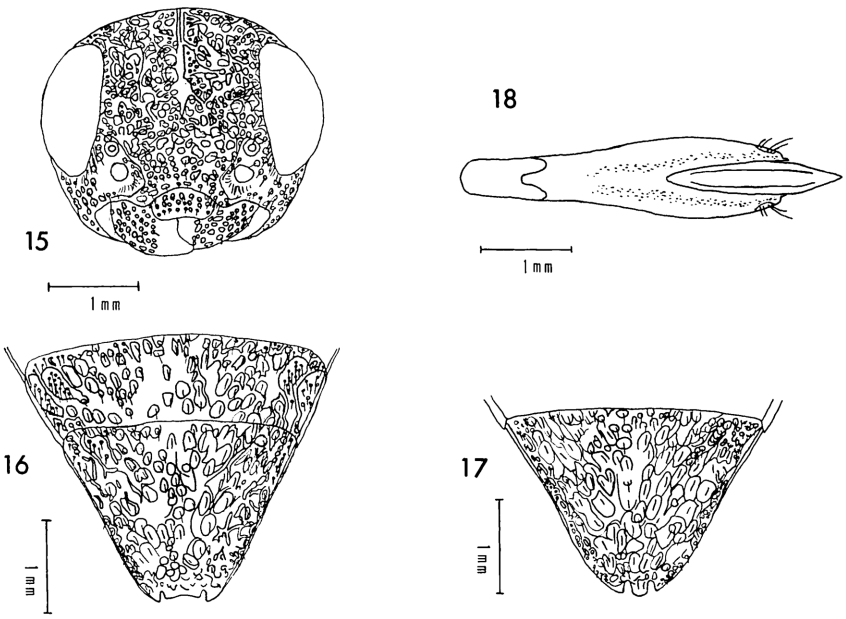
(probably formed by the sensory pores).

Pronotum as in *D. corrugata*, about 1.6 times as wide as long, widest at 2/3 from base and at the base; anterior margin 0.67 times as wide as posterior margin, bisinuate with median lobe broadly produced and truncated at middle; posterior margin bisinuate, arcuately produced at middle; sides as in *D. corrugata* though feebly convergent from base to basal 1/4; anterior angles as in *D. corrugata* though arcuately produced in lateral view; marginal costae obviously elevated, sinuate, and arcuate downwards at anterior 1/3 though straight in basal 1/5 in lateral view; prehumeral costae above marginal costae arcuate upwards, though visible from above only from basal 1/6 to 1/3 and obsolete before and behind there; median carina running from base to anterior 1/4; two longitudinal costae on each side present at lateral 1/4 and 3/5 from ante-scutellar part, respectively.

Scutellum as in *D. corrugata* though transversely depressed in the middle.

Elytra as in *D. corrugata*, 3.6 times as long as pronotum, widest just at the middle of elytral length[2]; sides feebly expanded by humeral prominences at basal 1/12, then linearly expanded to the widest part which is arcuate, and sinuously convergent to apices which are furcate; each apex truncated with blunt spines at both angles; outer margins as in *D. corrugata* though serrate from middle to apices; each elytron with five costae as follows: inner three traceable though the outer two are interrupted and disappear in some places, and elevated costal parts distributed on three transverse areas, obsolete or disappearing on the remaining area, 1st transverse area situated at basal 1/4 (2/7 of elytra in length), 2nd situated just behind the middle (1/5 of elytra in length), 3rd from apical 2/7 to apex; 1st costa conjoint with sutural margin at basal 1/4, 2nd running from base to apex though obsolete by punctures at two or three parts, 3rd running from base to apical 1/7 though obsolete at two parts, and the anterior obsolete part decorated with roundly impressed spot at basal 1/3, the spot provided with short whitish brush-like setae, 4th running from humeral prominence to apical 1/4 though obsolete from the beginning to basal 2/7 by reticulated punctures and disappearing at two parts behind there by confluent sculptures, 5th running from underside humeral prominence to apical 1/12 though obsolete from the beginning to basal 1/4 by reticulated punctures and disappearing at three parts behind there by confluent sculptures, and the middle disappearing part decorated with roundly impressed spot at apical 1/3, the spot provided with short whitish brush-like setae, 3rd, 4th and 5th costae ridged in the transverse area; five intercostal intervals present as follows: inner two traceable and costate, outer three obsolete by confluent sculptures and disappearing in some places though faintly traceable in the obsolete places, 1st running from base to apex, 2nd running from base to apical 2/9, 3rd and 4th running from humeral prominence to apical 1/4, 5th running from underside humeral prominence to apex though invisible from above by inclined side, and a spot with short whitish brush-like setae at basal 2/9 on lateral margin; surface scattered with round punctures mainly in basal and sutural

2) From the tip of scutellum to the apices.



Figs. 15–18. *Dicerca kurosawai* sp. nov. (15, 16 & 18: ♂ holotype), (17: ♀ allotype); 15, head in frontal view; 16–17, last visible abdominal sternite, with 4th sternite in Fig. 16; 18, male genital apparatus in dorsal view.

parts, the punctures becoming obsolete and more confluent towards lateral sides, each puncture with a semi-recumbent whitish seta; punctures on striae as in *D. corrugata* though conspicuous in 1st and 2nd transverse area, and longitudinally confluent towards sides.

Prosternum as in *D. corrugata*. Mesosternum as in *D. corrugata* except for punctation which becomes coarser and more reticulate towards the sides. Metasternum as in *D. corrugata* though coarsely and reticulately punctate towards the sides.

Middle and posterior coxae as in *D. corrugata*.

Abdomen as in *D. corrugata*; last visible sternite rectangularly emarginate at apex with a pair of lateral notches at the bottom, which is shallowly excavated; 2nd, 3rd and 4th segments each with a pair of roundly impressed spots at anterior 3/10 of lateral sides, the spots being provided with brush-like whitish recumbent hairs.

Legs as in *D. corrugata*; mesotibia straight though bisinuate with the widest part at anterior 2/5 of inner side, and bearing small spines arranged behind the widest part.

Male genital apparatus as in *D. corrugata*; parameres with each apex acutely produced apicad at inner angle; aedeagus triangularly produced towards apex.

Female. Prosternum with prosternal process feebly depressed on median line. Abdomen longitudinally depressed in the middle of 1st segment; apex of last visible sternite as in *D. corrugata*. Legs as in *D. corrugata* except for mesotibia feebly bisinu-

ate with the widest part at anterior 2/5 in inner side.

Length: 12.5–15.0 mm (mean 14.0 mm) (♂), 15.6–16.6 mm (mean 16.0 mm) (♀).

Width: 4.8–6.0 mm (mean 5.5 mm) (♂), 6.3–6.6 mm (mean 6.4 mm) (♀).

Type series. Holotype: ♂, Shishanchi (1,400 m in alt.) near Kukuang, Taichung Hsien, Taiwan, 2–VII–1993. Allotype: ♀, same locality as the holotype, 23–VII–1994. Paratypes: 1♀, Yokohama harbor in Japan (collected from a log of Hinoki cypress by fumigation in Yokohama Plant Protection Station, which was imported from Keelung, Taipei Hsien, Taiwan), 22–IV~26–VII–1976; 1♀, Lalashan, Taoyuan Hsien, 20–VI–1986, Chinchi LUO leg.; 1♀, Nanshanchi, Nantou Hsien, 16–III–1990; 1♀, Tapan (1,800 m in alt.), Taichung Hsien, 21–VII–1990, Chinchi LUO leg.; same locality as the holotype: 1♀, 23–VII–1993, Hyôji TORIGAI leg.; 1♂, 2–VIII–1993; 2♂♂, 1♀, 22–VII–1996, Chinchi LUO leg.

The holotype and the allotype are deposited in the National Science Museum (Nat. Hist.), Tokyo. The paratypes are separately preserved in the collections of the authors.

Host plant. All the specimens from Shishanchi were captured on a stout trunk of a felled pine tree about 70 cm in diameter and 20 m in length. It is probable that the host plant belongs to the family Pinaceae.

Etymology. The specific name is given after Dr. Y. KUROSAWA who made many excellent contributions to the taxonomy of the Japanese and Taiwanese buprestid beetles.

Remarks. This new species is similar to *D. corrugata*, but can be distinguished from it by the following diagnostic features: 1) anterior margin of clypeus shallowly and arcuately emarginate, while in *D. corrugata*, it is arcuately emarginate though shallowly excavated at the middle, 2) antennae with different kinds of sockets on the inner surface of the 7th to the apical segments, while in *D. corrugata*, different kinds of pores are scattered on the inner surface of the 6th to the apical segments and also on outer surface of the 10th and the apical segments, 3) median carina of pronotum running from the base to anterior 1/4, though entire in *D. corrugata*, 4) each elytron with three traceable inner costae, with two roundly impressed spots provided with short whitish brush-like setae on basal 1/3 of 3rd costa and apical 1/3 of 5th costa, and with a spot with similar setae on basal 2/9 of lateral margin, while in *D. corrugata*, all costae are traceable without any roundly impressed spots provided with setae, 5) 2nd, 3rd and 4th abdominal segments each with a pair of roundly impressed spots with brush-like whitish recumbent hairs on anterior 3/10 of lateral sides, though roundly impressed spots are lacking in *D. corrugata*, 6) apex of last visible abdominal sternite rectangularly emarginate with a pair of lateral notches at the shallowly excavated bottom, while in *D. corrugata*, the apex is trapezoidally emarginate at the bottom, which is shallowly excavated without any notches (male), 7) mesotibia without thin plate as in *D. corrugata* (male), 8) parameres of male genitalia acutely produced at the apical inner angles, while in *D. corrugata*, they are rounded at apices and obtusely angulate at the inner angles.

Notes. The two species herein dealt with have unique characters as compared

with *D. aenea* (LINNÉ, 1761), the type species of the genus *Dicerca*, because scattered pores or additional sockets are visible on the antennae other than the ordinary sockets of sensory pores. These two species may be classified in a species-group different from that represented by the type species which possesses only the ordinary sockets of sensory pores on the antennae.

From the same antennal characters, the members of the genus *Dicerca* occurring in Japan and the adjacent countries are distinguished as follows: 1) *D. tibialis* LEWIS, 1893 from western Japan and China has additional sockets on the antennae, though they are weaker than in *D. kurosawai* sp. nov., 2) *D. nishidai* TÔYAMA, 1986 from the Tokara Group of the Ryukyu Islands also has scattered pores on the antennae, which are much more distinct than in *D. corrugata*, and 3) both *D. furcata* (THUNBERG, 1787) from Hokkaido of northern Japan, northern China, eastern Siberia and northern Europe and *D. unokichii* HATTORI, 1991 from central Taiwan have only the ordinary sockets on the antennae like *D. aenea* (LINNÉ, 1761).

要　　約

服部宇春・秋山黄洋†：アジアのタマムシの研究．3) *Dicerca corrugata* とそれに近縁な台湾からの1新種．—— 中国云南地方から記載された *Dicerca corrugata* FAIRMAIRE, 1902 を再記載するとともに，台湾からそれに近縁な *Dicerca kurosawai* sp. nov. を記載した．この新種は，中国産の種とは，前胸背板の中央縦隆線が前縁に達しないこと，雄の中肢脛節の内縁に棘突起がないこと，上翅の第3と第5縦隆脈上に白毛を伴った紋があることなどによって区別される．

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Elytra, *Tokyo*, **27** (2): 429–438, November 13, 1999

A Revision of the Eubrianacinae (Coleoptera, Psephenidae)

II. *Mubrianax* gen. nov.

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Abstract *Mubrianax* gen. nov. is described from the Oriental Region. Larval and pupal characters of the genus is also described and compared with those of *Eubrianax* KIESENWETTER. *Eubrianax basipennis* PIC, 1913, *E. robustior* PIC, 1928, and *E. atripennis* PIC, 1931 are transferred to *Mubrianax*. *Eubrianax bicolor* PIC, 1955 is synonymized with *Eubrianax basipennis* PIC. A key is provided to the males of the species.

Introduction

Mubrianax is unique because its larvae are found only on woods submerged in the water. So far, only *Macroeubria* PIC (LEE *et al.*, 1997), a genus in another subfamily (Eubriinae), was reported to live in such habitats. Larva of *Mubrianax* is easily recognized from those of other genera of the eubrianacines by the oblong body form. This shape is adaptive since the larvae can tightly adhere to slender twigs. We have successfully reared larvae of *M. robustior* (PIC), comb. nov., to adults. Therefore, it is possible to define generic characteristics of larvae and pupae of *Mubrianax* by studying those of this new species.

Acronyms:

BPBM	Bernice P. Bishop Museum, Honolulu
MHNP	Muséum national d'Histoire naturelle, Paris
NHMW	Naturhistorisches Museum Wien, Vienna

NML National Natuurhistorisch Museum, Leiden
NTUC National Taiwan University, Taipei
NWU Nagoya Women's University, Nagoya

Mubrianax gen. nov.

Type species: *Eubrianax basipennis* PIC, 1913.

Description. Adult. Body form oblong, moderately depressed; surface densely pubescent in general but sparsely on pronotum; pronotum with latero-apical translucent areas not distinctly delimited.

Head completely concealed under pronotum; frons apically dilated; labrum transverse, medially emarginate. Antenna 11-segmented, segments 3–10 serrate in female, pectinate in male, rami very long, laterally flattened, starting from base on segment 3, from middle on segment 4, from apices on segments 5–10. Maxillary palpus 4-segmented, segment 1 very short, terminal segment the longest, the apex rounded or truncate; segment 2 subequal to 3, much shorter than terminal segment; labial palpus 3-segmented, terminal segment elongate and similar to that of maxillary palpus; basal segments of both maxillary and labial palpi more or less reduced. Pronotum transverse, widest usually near basal 1/3, slightly contracted towards base, more distinctly contracted towards apex; margins smooth; anterior margin rounded; posterior angles rectangular; disc medially convex. Scutellum subtriangular. Elytra parallel-sided (LE/WE=1.2–1.4); disc with stripes consisting of more impressed punctures; lateral margins smooth.

Prosternum produced anteriorly; prosternal process apically tapering, apex either short acute and not reaching mesosternum or long dilated and surpassing mesosternum; mesosternal median longitudinal cleft depressed, with device for reception of prosternal process; metasternum with median longitudinal suture, deeply impressed. Mesocoxal cavities separated from each other. Legs moderately long, apical spurs of pro-, meso- and metatibiae 2–1–1; tarsi 5-segmented, segment 1 subequal to segment 5; segment 2 similar to segment 3 in length, shorter than segment 1 or 5; segment 4 the shortest; relative lengths of segments 2–5 about 2.2 : 1.4 : 1.3 : 1 : 2.3; tarsal claws (Fig. 11) simple, slightly curved, with notches at basal 1/3 and without pulvilli.

Aedeagus:— Trilobed; fibula reduced or absent; penis basally widened, compressed near apex, baso-lateral apophyses short; parameres long and very slender, reaching apex of median lobe, apices hook-like; phallobase subequal to parameres in length, narrowed basally.

Larva. Body form oblong. Granules on dorsum not reduced at sides. Posterior plates present on all thoracic segments (including pleurites), and on abdominal segments 1–5, though reduced on main plate of abdominal segment 5 and separated from basal margins of pleurites on prothorax. Costal line well developed on abdominal segments 4–7; those on meso- and metathoraces and abdominal segments 1–3 only present on pleurites, arising and abbreviated near middle.

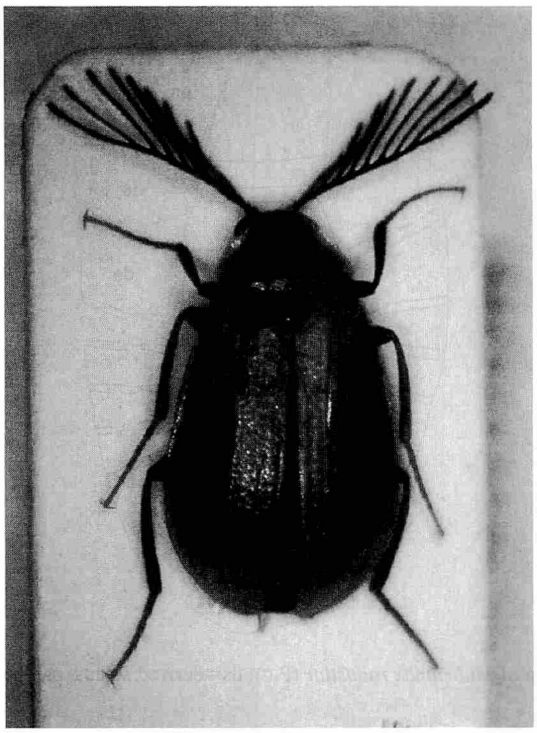


Fig. 1. Habitus of *Mubrianax basipennis* (PIC).

Periocellar sulci of prothoax conjoined with mid-dorsal line near apex; mid-dorsal pronotal plate reduced. Some derived sulci recognized on tharaces, one arising from antero-lateral angles of main plates on prothorax, and another arising from postero-lateral angles of posterior plates on prothorax and paired V-shaped one arising from middle of basal margins of pleurites on meso- and metathoraces irrespectively.

Marginal peg setae of pleurites 2-segmented (Fig. 3); basal piece with full teeth at sides; apical setae on basal pieces paired and lanceolate, apico-lateral angles lengthened. Hair-like setae on posterior margins comb-shaped. Base of coxae of all legs furnished with a row of lanceolate setae, the number of setae varying on different legs: 4–5 on prothoracic legs, 10 on mesothoracic legs, and 9 on metathoracic legs.

Pupa. Openings of spiracles gathered on 7th tergite, but absent in antero-mesal area (Fig. 5). All openings of spiracles very small, randomly scattered on tergite, though respective spiracles are much larger than in *Eubrianax*. Number of openings of each spiracle recognized as sexual dimorphism; 300 openings in the male of *M. robustior* (PIC) and 700 openings in the female. Marginal extensions of setae (Fig. 4) parallel-sided and margined by minute teeth, with the multifurcate apex. Each of them fused into a delicate, fin-like membrane and the disc provided with sparse granules and micro-spined projection.

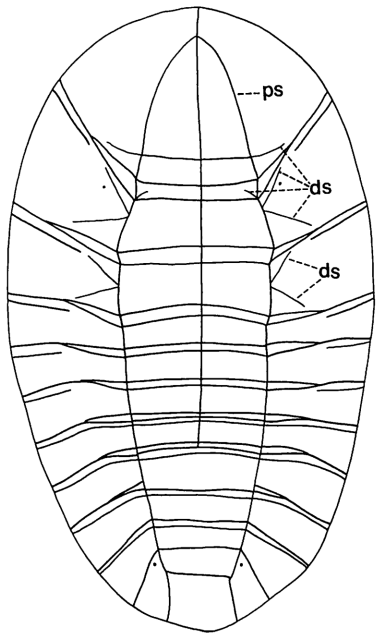
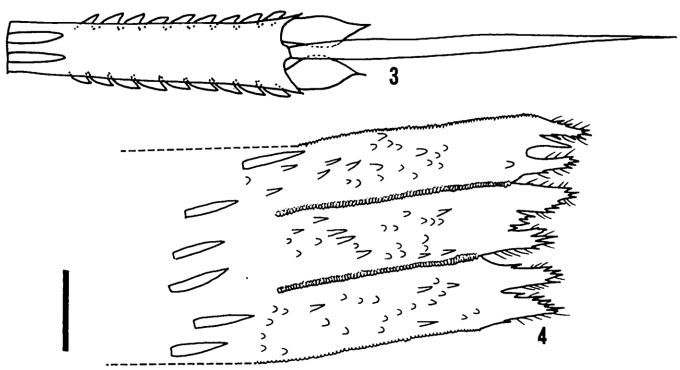


Fig. 2. Larva of *Mubrianax robustior* (PIC); ds=derived sulcus, ps=periocellar sulcus.



Figs. 3–4. *Mubriananx robustior* (PIC); 3, marginal peg seta of larva; 4, marginal seta of pupa. Scale bar=1 mm.

Diagnosis. Adult. This genus may be distinguished from others by a combination of the following characteristics: tarsal claws without pulvilli (in contrast to the presence of pulvilli in *Eubrianax* and *Hebrianax*); apical spurs of tibia 2–1–1. In addition, *Mubrianax* has one autapomorphic character — tarsal claws with a notch. It is very useful to recognize members of the genus.

Larva. The present genus is closely related to *Eubrianax*, but differs from the

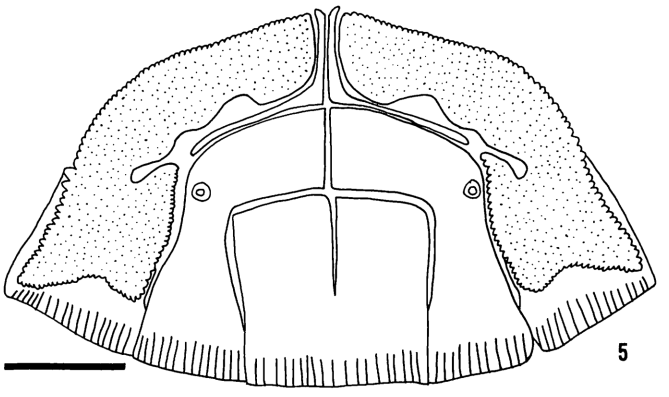


Fig. 5. *Mubrianax robustior* (PIC); abdominal terga 7–9 of pupa; dotted areas indicate spiracles. Scale bar = 1 mm.

latter in having some distinct features as described above. Besides, the lanceolate setae on the legs of *Mubrianax* is also characteristic and present on the prothorax. In *Eubrianax*, the lanceolate setae of the legs vary among different species; for example, in *E. tarokoensis* 7–10 on mesothoracic legs and 8–13 on metathoracic legs; in *E. loochooensis* 3–4 on mesothoracic legs and 5–8 on metathoracic legs; reduced on prothoracic legs.

Pupa. Differing from that of *Eubrianax* in having the characteristic spiracles on tergite and the extension setae at pleurites margins.

Etymology. Mu from wood in Chinese, indicating their preferred habitat.

Included species. *Mubrianax basipennis* (PIC), comb. nov., *M. robustior* (PIC), comb. nov., and *M. atripennis* (PIC), comb. nov.

Ecology. Larvae of *Mubrianax* prefer small unpolluted streams. They are always found on submerged woods.

Distribution. Indonesia, East Malaysia, Philippines, Central Africa (Cameroon).

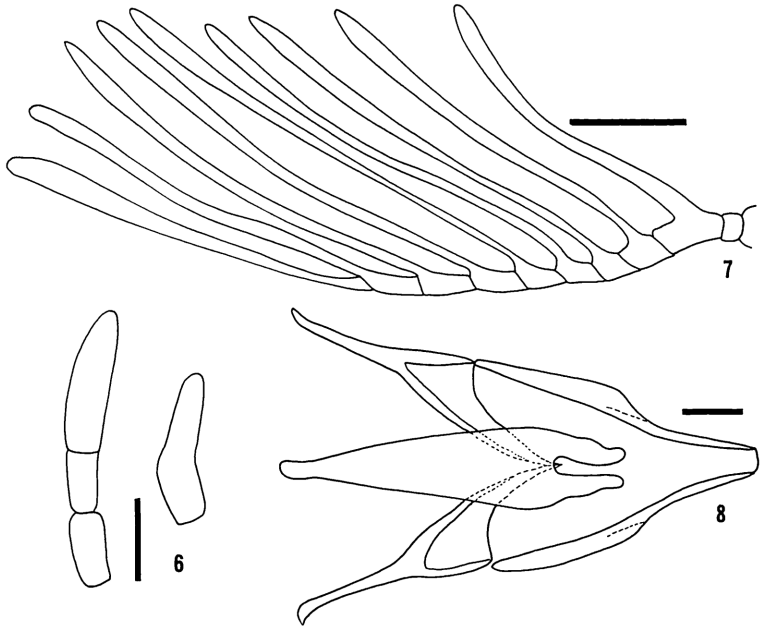
Mubrianax basipennis (PIC), comb. nov.

(Figs. 1, 6–8)

Eubrianax basipennis PIC, 1913, 173.
Eubrianax bicolor PIC, 1955, 228. *Syn. nov.*

Type material. Lectotype: ♂ (herewith designated, MHNP), Occident Sukabumi, Java, 2000', 1893, H. FRUHSTORFER leg., with "No 8 / Purteke ...undecipherable / n. sp. / Type / TYPE / *Eubrianax basipennis* Pic". Paralectotype: 1 ♂ (herewith designated, MHNP), Occident Sukabumi, Java, 4000', 1893, H. FRUHSTORFER leg.

Synonym. We have examined the lectotype of *Eubrianax bicolor* (herewith designated, MHNP), labeled: "Yumband / cotype / *Eubrianax bicolor* Pic". No doubt *E. bicolor* should be a synonym of *E. basipennis*.



Figs. 6–8. *Mubrianax basipennis* (PIC); 6, maxillary (left) and labial (right) palpi; 7, male antenna; 8, aedeagus. Scale bar: 6, 8=0.1 mm, 7=1 mm.

Additional material examined. 1♂ (NML), Djampang Tengah, 2000', Preanger, Java, X–1934, E. WALISH leg., with "Museum Leiden / *Eubrianax basipennis* Pic 1913 Det. M. SATÔ, 1986"; 1♂ (NML), Tjiheavlakte, Preanger, Java, VI–1935, F. C. DRESCHER leg., with "Museum Leiden"; 1♂ (NML), Batoerraden G., Slamet, 800 m, Java, VI–1938, F. C. DRESCHER leg., "Museum Leiden"; 1♂, G. Tangkoeban Prahoe, 4,000–5,000, Voet Preanger, Java, XI–1934, F. C. DRESCHER leg., with "Museum Leiden"; 1♂ (NML), same data as the preceding one, but "3–5 II. 1933"; 1♂ (BPBM), Del Sur Lemesahan, 600 m, Zamboanga, Mindanao, Philippines, 7–IX–1958, light trap, H. E. MILLIRON leg.; 1♂ (NWU), Sitinjaulaunt, alt. 1,000 m, 25 km east from Padang, Sumatera Barat, Indonesia, 21–VIII–1977, S. NAGAI leg., with "*Eubrianax bicolor* Pic, 1955, Det. M. SATÔ, 1986"; 1♂ (NTUC), same data as the preceding one, but "7–VIII–1977"; 1♀ (NWU), Mt. Padang, alt. 100 m, Barat, Sumatra, 7–VIII–1977, S. NAGAI leg.; 1♂ (NML), Tjibodas, Java, L. DE VOS leg., with "Museum Leiden coll J de Vos tot Nederveen Cappel".

Male. Length 5.4 mm, width 3.8 mm. Coloration yellowish brown, but antennae brown, eyes and base of each antennomere black, scutellum brown, elytra entirely or apically darkened. Antennae (Fig. 7) pectinate from segments 3 to 10; relative lengths of rami to antennomeres from segments 3 to 10 about 5.0 : 10.0 : 11.5 : 11.2 : 10.3 : 9.1 : 8.5 : 6.6. Maxillary palpus (Fig. 6) slender, with rounded apex; relative lengths of segments 2–4 about 1.2 : 1 : 2.2. Labial palpus small, about 0.5× as long as

maxillary palpus; terminal segment narrowed in apical half, with rounded apex. Prosternal process short, not reaching mesosternum; apex acute. Median longitudinal cleft on mesosternum absent. LE/WE=1.3. WP/LP=1.6. WP/WE=0.6. Aedeagus (Fig. 8) 1,500 μm long, 2.3× as long as wide. Penis 0.7× length and 0.4 width of aedeagus, basally widened, widest at basal 1/3. Parameres short, about 0.7× length of basal piece. Fibula invisible.

Variation. Some individuals have yellowish brown pronotum and elytra, and shorter antennal rami.

Female. Length 8.0 mm, width 5.3 mm. Coloration yellow, but eyes and antenna black. LE/WE=1.3. WP/LP=1.6. WP/WE=0.6.

Diagnosis. Mubrianax basipennis is easily recognized from others on the yellowish brown coloration.

Distribution. Indonesia (Java, Sumatra), Philippines (Mindanao).

Mubrianax robustior (PIC), comb. nov.

(Figs. 2–5, 9–13)

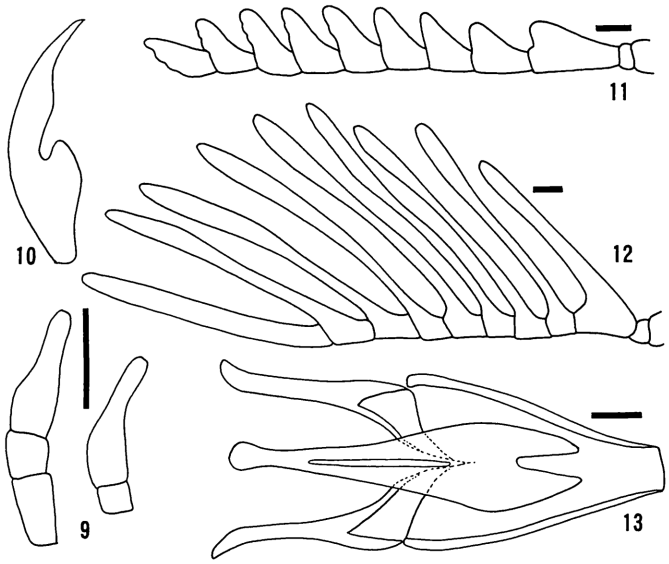
Eubrianax robustior PIC, 1928, 8.

Type material. Lectotype: ♂ (herewith designated, MHNP), Binaluan, N. Palawan, Philippines, with "Type / TYPE / *Eubrianax robustior* n. sp.". Paralectotype: 1♀ (herewith designated, MHNP), same data as the lectotype.

Additional material examined. 1♂ (NHMW), Batu Punggul, primary forest, Sabah, Malaysia, 24–VI~1–VII–1996; 1♂ (NTUC), Poring Hot Spring, Sabah, Malaysia, 10–IX–1998 (larva), 12–I–1999 (emerged), C.-F. LEE leg.; 1♀ (NHMW), same data as the preceding one, but 11–XI–1998 emerged; 1♀ (NTUC), same data as the preceding one, but 23–XI–1998 emerged; 1♂ (BPBM), Bunong Matang, 120 m, Sarawak, Borneo, 15–IX–1958, J. L. GRESSITT leg.; 1♂ (BPBM), Matang, 450–894 m, Kuchin, Sarawak, Borneo, 15–IX–1958, J. L. GRESSITT leg.

Male. Length 3.2 mm, width 2.0 mm. Coloration dark brown, except for eyes and bases of antennomeres black and antero-lateral areas of pronotum translucent. Antennae (Fig. 12) pectinate from segments 3 to 10; relative lengths of rami to antennomeres from segments 3 to 10 about 3.4 : 7.5 : 8.2 : 9.0 : 8.2 : 8.2 : 7.0 : 5.3. Maxillary palpus (Fig. 9) slender; terminal segment apically tapered, apex narrowly rounded; relative lengths of segments 2–4 about 1.6 : 1 : 3.0. Labial palpus short, about 0.7× as long as maxillary palpus; terminal segment similar to that of maxillary palpus; segment 1 very short. Prosternal process long, surpassing mesosternum; apex dilated. Median longitudinal cleft on mesosternum present only near base. LW/WE=1.3. WP/LP=1.6. WP/E=0.6. Aedeagus (Fig. 13) 890 μm long; 2.7× as long as wide. Penis 0.8× length and 0.5 width of aedeagus, basally widened, widest at basal 1/3. Parameres short, about 0.8× length of basal piece. Fibula slender.

Female. Length 6.0 mm, width 3.2 mm. Similar to male, but the antenna is strongly serrate (Fig. 11). LE/WE=1.3. WP/LP=1.7. WP/WE=0.7.



Figs. 9–13. *Mubrianax robustior* (PIC); 9, maxillary (left) and labial (right) palpi; 10, tarsal claw; 11, female antenna; 12, male antenna; 13, aedeagus. Scale bar: 9, 13=0.1 mm, 10 as same as 9; 11, 12=1 mm.

Ramarks. This new species is easily distinguished from the others by its small body size and black coloration.

Distribution. Philippines (Palawan), East Malaysia (Sarawak, Sabah).

Mubrianax atripennis (PIC), comb. nov.

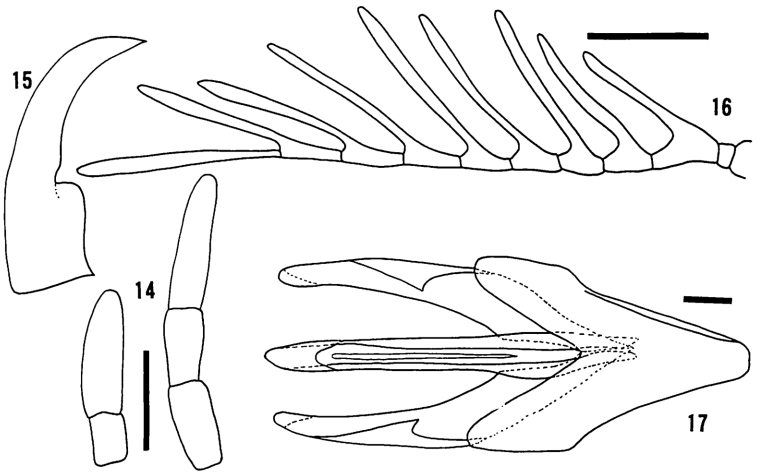
(Figs. 14–17)

Eubrianax atripennis PIC, 1931, 9.

Type material. Lectotype: ♂ (herewith designated, MHNP), Kamerun Ekoua, with "type (yellow label) / TYPE (red label) / *atripennis* n. sp."

Additional material examined. 2♂♂ (NTUC, NHMW), Nyassoso Village, Mt. Kupe, Kamerun, IV–1997, DENTON leg.

Male. Length 5.2 mm, width 3.0 mm. Coloration blackish brown, except for paler femur and antero-lateral areas on pronotum translucent. Antennae (Fig. 16) pectinate from segments 3 to 10; rami starting from base on segments 3 and 4, from middle on segments 5 and 6, from near apex on segments 7–10, relative lengths of rami to antennomeres from segments 3 to 10 about 2.0 : 3.0 : 3.5 : 3.5 : 3.5 : 3.5 : 2.9 : 2.8. Maxillary palpus (Fig. 14) slender; terminal segment apically tapered, with narrowly rounded apex; relative lengths of segments 2–4 about 1.1 : 1 : 1.9. Labial palpus short, about 0.6× as long as maxillary palpus, terminal segment similar to that of maxillary palpus; segment 1 very short. Prosternal process short, reaching base of mesosternum;



Figs. 14–17. *Mubrianax atripennis* (PIC); 14, maxillary (right) and labial (left) palpi; 15, tarsal claw; 16, male antenna; 17, aedeagus. Scale bar: 14, 17=0.1 mm; 15 same as 14; 16=1 mm.

apex acute. Median longitudinal cleft on mesosternum absent. Notches on tarsal claws (Fig. 15) very feeble. LW/WE=1.4. WP/LP=1.8. WP/E=0.6. Aedeagus (Fig. 17) 1,000 μm long, 2.6× as long as wide. Penis 0.8× length and 0.3 width of aedeagus, basally widened, widest at basal 1/3. Parameres short, about 0.7× length of basal piece. Fibula slender.

Diagnosis. This species is similar to *M. robustior*, but differs from it in the longer antennomeres, the shorter antennal rami, and the larger body size.

Distribution. Cameroon (Central Africa).

Discussion

Mubrianax shows some remarkable differences from *Eubrianax* in the pupal stage. The surface of the spiracles become larger, and the openings are very small and numerous. The marginal extensions of setae are very closely set to one another, leaving no crevices. Perhaps these imply that pupation occurs under the water. Unfortunately, we did not observe any pupae in the field. However, some observations support this assumption. *Mubrianax* prefers twigs for pupation even when provided some other substances, *e.g.*, stones and dead leaves. In addition, these twigs are seldom projected over the water in the field. Therefore, the larvae may pupate on those fully submerged twigs.

BERTRAND and LAURENTIAUX (1963) described a fossil species, *Eubrianax vandeli*, from France based on the larval form. It displays an oblong body shape as in *Mubrianax*. Unfortunately, this fossil is morphologically so inadequate that we cannot draw definite conclusion that they are phylogenetically very close. However, if the peculiar body shape is autapomorphic in *Mubrianax*, it implies that *Eubrianax vandeli*

belongs to *Mubrianax* and that both have a common ecology.

Key to the Males of the Species of *Mubrianax*

1. Coloratoin yellowish brown, or elytra apically darkened; antenna brown, bases of antennomeres black ..... *M. basipennis* (PIC).
— Coloration blackish brown ..... 2.
2. Antennomeres longer, antennal rami shorter ..... *M. atripennis* (PIC).
— Antennomeres shorter, antennal rami longer..... *M. robustior* (PIC).

Acknowledgments

We specially thank Mr. M.-L. JENG for his help to examine the type specimens deposited in the MHNP. We thank Dr. G. A. SAMUELSON and Dr. M. A. JÄCH for the loan of specimens. We also thank Dr. S.-I. UÉNO, Dr. T. K. PHILLIPS and Dr. W. D. SHEPARD for reading the manuscript.

要　約

李　奇峰・佐藤正孝・楊　平世：マルヒラタドロムシ亜科の再検討．II. *Mubrianax* 属．——世界のマルヒラタドロムシ亜科についての再検討のなかで，3種からなる小さい一群を新属として認め，*Mubrianax* と命名記載した．そのうちの1種の幼虫を採集することができ，飼育にも成功したので，幼虫と蛹の形態を記載したが，これによっても属を特徴づけることができた．

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Elytra, *Tokyo*, **27** (2): 439–443, November 13, 1999

A New Species of the Genus *Parastasia* (Coleoptera, Scarabaeidae, Rutelinae) from Southern Vietnam

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Abstract A new species of the genus *Parastasia* WESTWOOD is described from southern Vietnam under the name of *Parastasia hitomi* sp. nov. It is related to *P. fujiokai* from Sumbawa.

In 1991, I obtained remarkable specimens belonging to the genus *Parastasia* from the Dalat Highlands in southern Vietnam. After a detailed study, I have concluded that the species is new to science. In this article, I am going to describe it under the name of *Parastasia hitomi*.

Before going further, I wish to express my cordial appreciation to Dr. Kimio MASUMOTO of Otsuma Women's University, Tokyo, for his constant guidance of my entomological study. Deep indebtedness should be expressed to Dr. Giulio CUCCODORO of the Muséum d'Histoire naturelle, Genève, for the loan of materials under his care. My thanks are also due to Mr. Yasushi TOKITA, Tama City Cultural Foundation for taking the SEM photographs. Finally, thanks are also due to Mr. Masaaki ISHIDA, Tokyo, for giving me the opportunity to examine collections of the genus *Parastasia*. The holotype of the new species will be preserved in the collection of the Kanagawa Prefectural Museum of Natural History, Odawara, Japan.

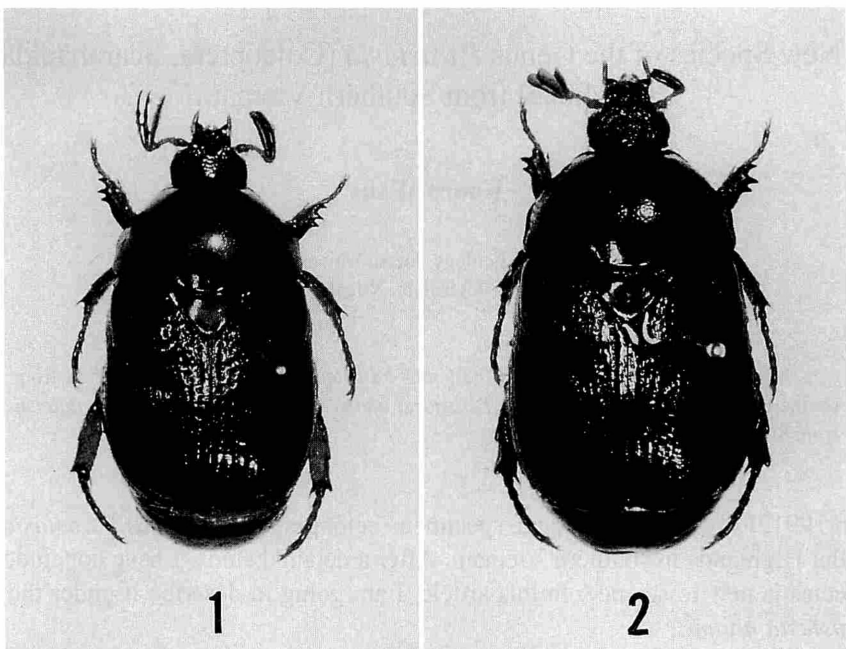
Parastasia hitomi sp. nov.

(Figs. 1–6)

Body length: 10.8–16.9 mm, width: 8.5–9.4 mm.

Antennae, head, and ventral surface except for 6th abdominal sternite blackish brown to black, pygidium, 6th abdominal sternite orange in both sexes; pronotum, scutellum, elytra, propygidium, and legs reddish brown to dark reddish brown in male, dark brown to brownish black in female; elytra without any patches in male, with vague reddish brown patches at humeral swellings in female, which also has reddish brown areas along scutellum and elytral suture; dorsal surface except pygidium with vitreous lustre, pygidium and ventral surface with rather weak lustre.

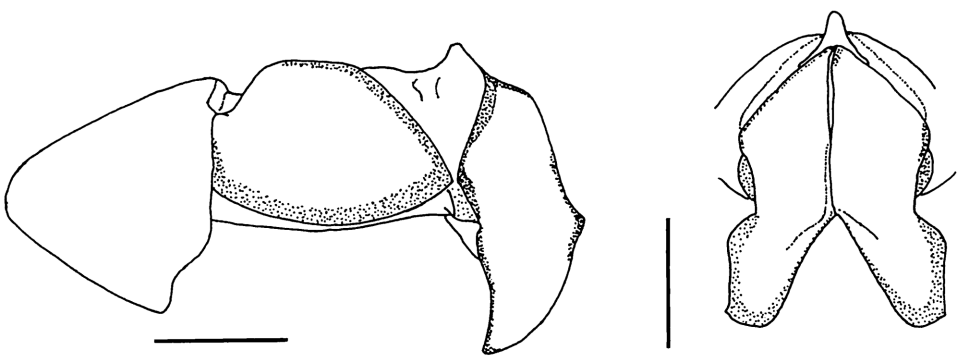
Head micro-shagreened, clypeus rectangular, obliquely rugulose in anterior por-



Figs. 1–2. Habitus of *Parastasia hitomi* sp. nov.; 1, holotype, ♂; 2, allotype, ♀.

tion, distinctly punctate in posterior portion, the punctures shallow, large and partly confluent to reticulation; apical margin reflexed, feebly rounded at antero-lateral corners, with a pair of sharp upright teeth; lateral margins before eye-canthus subparallel in apical 2/3, slightly curved inward in basal 1/3, with transverse ridges at the base of eye-canthus in lateral 1/3 of clypeus; frons and vertex shallowly and irregularly punctate, the punctures dense, elongate and wrinkled along eyes in male, partly confluent to reticulation in female; vertex sparsely furnished with short yellowish brown setae (0.1–0.3 mm in length) in lateral portions; eyes moderately convex; interocular distance 3.2–3.3 times in male and 3.5–3.8 times in female the width of an eye diameter. Labrum trapezoidal, with anterior margin produced, rounded and slightly sinuous. Galea with a single, vestigial tooth located at the base. Length of antennal club longer than interocular distance (1.2 : 1) in male, shorter than that (0.87–0.9 : 1) in female.

Pronotum 1.3–1.6 times as wide as long, rather roundly narrowed in apical 3/5, sublinearly narrowed in basal 2/5; front angles obtusely angulate, hind angles rounded; lateral margins obviously rimmed, the rims becoming finer apicad in anterior half, disappearing before hind angles; disc in male sparsely punctate, the punctures small and rounded in middle, oblique and semicircular in lateral portions, becoming much larger and denser laterad, disc in female with a shallow longitudinal groove in the medial part, and a pair of vague impressions at anterior portion, and also with punctures almost of the same shape as in male, though being distinctly deeper.



Figs. 3–4. Male genitalia (scale: 1 mm) of *Parastasia hitomi* sp. nov.; 3, lateral view, 4, dorsal view.

Elytra at sides slightly sinuous in basal 1/2, then narrowed posteriad; distal margins rounded; rims of lateral margins thickened in anterior 2/5, becoming finer posteriad, and disappearing before hind corners; sutural apices almost flat; dorsum moderately convex, highest at the middle; disc feebly microsculptured, the sculpture visible under 40×, with 11 rows of deep punctures; intervals irregularly scattered with round to oblong punctures, which are various in size.

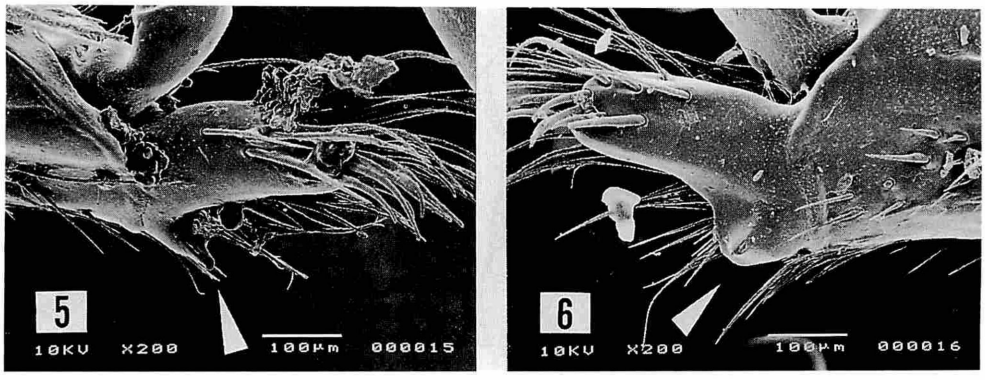
Propygidium slightly dull with a pair of transverse impressions at antero-lateral portions, scarcely punctate, the punctures shallow and small in medio-anterior portion, becoming denser and deeper laterad, transverse and large in lateral and posterior portions, each puncture furnished with a short, suberect yellowish brown seta (0.1–0.15 mm in length) in anterior portion.

Pygidium weakly microsculptured, with a pair of ill-defined depressions near antero-lateral angles; disc scarcely punctate in medio-posterior portion, the punctures in male circular, becoming denser and more transverse anteriad, partly reticulately rugulose in lateral portions, those in female transverse to oblique, partly coalescent in anterior and near lateral portions, reticulately rugulose in lateral portions; outer margins rimmed, nearly straight in lateral portions, with apex truncate in male, subtruncate in female.

Metasternum with a groove in the median part, scarcely punctate in middle, the punctures becoming denser, larger and more transverse laterad, those in lateral portions reticulately rugulose, each puncture with a rather long, suberect yellowish brown seta (0.5–0.95 mm in length) in lateral portions; mesosternal process short, with apex bluntly angulate in lateral view.

First to 4th abdominal sternites sparsely punctate in middle, reticulately rugulose in lateral portions, 5th and 7th wholly reticulately rugulose, 1st to 5th each with a row of short, suberect yellow setae, 7th with short, erect yellow setae in anterior portion.

Protibiae tridentate, fore claws simple, acuminate, sickle-shaped, approximately



Figs. 5–6. SEM photographs of galea of *Parastasia hitomi* sp. nov.; 5, ♂; 6, ♀. Magnification ratios are indicated at the bottom of each photograph.

equal in length, outer claws slightly slenderer than the inner ones; inner claws of middle and hind legs simply acuminate and curved; outer claws of middle and hind legs deeply incised apically, forming two branches, the lower branch broader than the upper; the lower branches of middle and hind legs broad, almost of the same length as the upper in male; the lower branch of middle leg distinctly short, about 1/4 times the length of the upper, the lower one of hind leg short, about 1/3 times the length of the upper in female.

Holotype: ♂, Dalat, southern Vietnam, 29–IV–1991. Allotype ♀: and paratypes (1♂, 2♀♀): same data as for the holotype.

Notes. This new species closely resembles in coloration *Parastasia fujiokai* WADA et MURAMOTO,1999, described from Sumbawa Is., but can be distinguished from the latter by the peculiar shape of middle and hind claws and male genitalia.

要　　約

和田　薫：ベトナム南部から発見された*Parastasia*属コガネムシの1新種．—— *Parastasia*属に属するコガネムシ，*P. hitomi*をベトナム南部から記載した．この種は，雌の色彩がスンバワ島から記載された*P. fujiokai* WADA et MURAMOTO, 1999によく似ているが，中肢と後肢の爪の形状および交尾器の形状から容易に区別できる．

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Elytra, Tokyo, **27** (2): 443–444, November 13, 1999

Oedemerid Beetles Collected in Connection with the International Kuril Islands Project 1995

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Oedemerid beetles in the Kuril Islands have been recorded only from Shikotan, Kunashir, Iturup and Urup Islands (KUWAYAMA, 1967; NIKITSKY, 1996). In 1995 two specimens of the family were collected from Kunashir and Urup Islands by the members of the International Kuril Islands Project (IKIP). Through the courtesy of Dr. Masahiro ÔHARA of Hokkaido University, one of the members of the IKIP, I have had the opportunity to examine the specimens preserved in the collection of the Otaru Museum, Hokkaido. The two specimens represent *Ditylus laevis laevis* (FABRICIUS) and *Nacerdes* (*Xanthochroa*) *atriceps* (LEWIS). Both the species are common in Hokkaido, and the latter is new to Urup Island. The collecting data are as given below.

Ditylus laevis laevis (FABRICIUS, 1787)

[Japanese name: Miyama-kamikirimodoki]

Specimen examined. Kunashir Is. [KU–95–PO–128]: 1♂, 44°00.10′N, 145°46.00′E, environs of Kislyi hot springs, near merge point for Lesnaya and Kislyi rivers, in small side channels of river, riparian vegetation of conifers, birches, willows, and grasses, alt. 40 m, 2–IX–1995, aerial net, beating sheet, D. E. HOEKSTRA, P. OBERG and N. MINAKAWA leg.

Distribution. Japan (Hokkaido, Honshû, Tsushima Is.), Korea, China, Russian Far East (Shikotan Is., Kunashir Is., Sakhalin), northern Europe (Finland, Baltic republics, northern Russia), throughout Siberia to Ussuri region.

Nacerdes (*Xanthochroa*) *atriceps* (LEWIS, 1895)

[Japanese name: Kikubi-kamikirimodoki]

Specimen examined. Urup Is. [UR–95–PO–017]: 1♀, 44°00.10′N, 145°46.00′E, island coastal margin of Otkryi bay, shores of Tokotan lake, picked from sandy shore, alt. 5 m, 5–VIII–1995, by hand and foreps, N. MINAKAWA leg.

Distribution. Japan (Hokkaido, Honshû, Shikoku, Kyushu), Korea, Russian Far East (Kunashir Is., Urup Is., Sakhalin). New to Urup Is.

I wish to express my special thanks to Dr. M. ÔHARA, Hokkaido University, for his kind offer of the invaluable specimens and support of the present study in many ways. I also thank Drs. S. TAKAGI and M. SUWA of Hokkaido University for their kindness in critically reading the manuscript. The work described here was supported in part by the Biological Science Directorate (Biotic Survey and Inventories Program) and the International Program Division of the U. S. National Science Foundation, Grant No. DEB–9505031, Theodore W. PIETSCH, principal investigator; and by the Japan Society for the Promotion of Science, Grant No. BSAR–401, Kunio AMAOKA, principal investigator.

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Elytra, *Tokyo*, **27** (2): 445–451, November 13, 1999

A Taxonomic Study of the Genus *Latipalpus* (Coleoptera, Scarabaeidae), III

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Abstract This is the third part of the study of the rhizotrogine genus, *Latipalpus*. A Bornean species, *L. palpalis* MOSER is redescribed and a new species, *L. fujiokai* T. ITOH is described from the same island. A key to all the component species is provided.

Up to the present, six species have been known as the members of the genus *Latipalpus* after my two previous studies on the genus. In this paper, I am going to add a new species, *L. fujiokai* from Borneo Island. As the result, seven species in total are known to us from both Java and Borneo Islands.

In the first place, I am going to show a key to all the component species in the following lines.

Key to the Species

1(10) Body oval, elytra somewhat short, usually shorter than and rarely equal to 2.8 times the width; protibia in male usually shorter than and rarely equal to pronotal length; protarsus in male short, slightly longer than in female.

2 (3) Terminal segment of maxillary palpus extremely wide in the middle; dorsal surface rather shining; femora noticeably densely with long hairs; scutellum almost triangular; 20.5 mm; Java ..... *L. latipalpis* MOSER.

3 (2) Terminal segment of maxillary palpus moderately wide in the middle; dorsal surface more opaque; femora moderately densely with hairs; scutellum more roundly cordate.

4 (5) Each claw with a very minute denticle; body rather small; 15.0 mm; Southern Borneo ..... *L. truncatipalpis* MOSER.

5 (4) Each claw with a distinctly larger denticle; body larger.

6 (7) Frons and pronotum more or less haired particularly in antero-central portion, though it is rarely glabrous entirely; 1st denticle of protibia in male situated nearer to base than to apex; 16.2–18.2 mm; Java .... *L. maxillatus* BRENSKE.

7 (6) Frons flattened, without setae; pronotum glabrous; 1st denticle of protibia in male nearer to apex than to base or approximately at the middle.

8 (9) Dorsal surface opaque; parameres of male genitalia becoming hook-shaped at

apices; eyes slightly more prominent; 17.9–22.1 mm; Northern Borneo .... *L. elegans* T. ITOH.

9 (8) Dorsal surface weakly shining; parameres of male genitalia sharply pointed at apices; eyes slightly less prominent, seemingly small; 14.8–20.2 mm; Western Borneo ..... *L. occidentalis* T. ITOH.

10 (1) Body elongate, elytra prolonged, 2.8 times as long as wide or longer than that; protibia in male approximately equal to or longer than pronotal length; protarsus in male noticeably long.

11(12) Dorsal surface weakly shining; each claw with a sharp denticle near base, though in male, at least outer claws of 4 posterior legs are edentate; protibia tridentate, though the 1st denticle is very small in male; 18.2–23.5 mm; Northern Borneo ..... *L. palpalis* MOSER.

12(11) Dorsal surface almost opaque; each claw with a large blunt denticle in 4 anterior legs; both denticles of outer and inner claws of 4 posterior legs of the same shape in both sexes; protibia bidentate in male; 19.0–25.5 mm; Northern Borneo ..... *L. fujiokai* T. ITOH, sp. nov.

Latipalpus palpalis MOSER

(Figs. 1, 3 a, 4 a, 5 a–b, 6 a, 7 a)

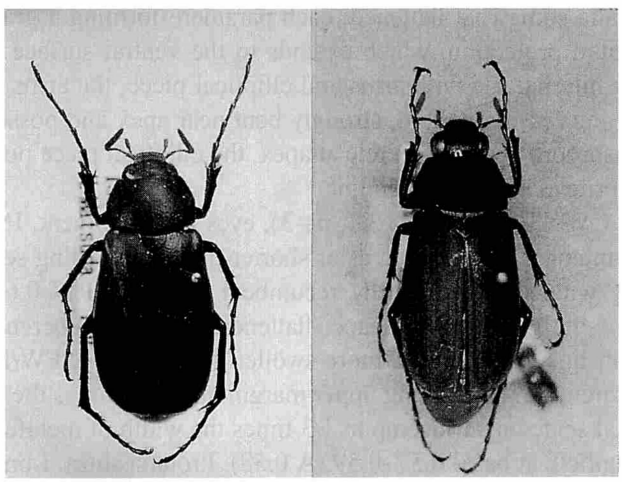
Latipalpus palpalis MOSER, 1921, Stett. ent. Ztg., **82**: 64.

Description. Length: 18.2–23.5 mm.

Male. Head, pronotum, scutellum, tibiae and tarsi dark blackish brown, elytra, pygidium and ventral surface light brown. Dorsal surface weakly shining and glabrous, ventral surface opaque and densely haired, though the abdomen is shining and glabrous and the legs are shining. Body noticeably elongate and slender.

Head flattened, hardly elevated and moderately densely with fine punctures; clypeus transverse, very densely and coarsely punctate, CW/CL 3.0–3.4 (A 3.2, n=5), fronto-clypeal suture weakly arcuate or biarcuate; eyes remarkably prominent, IN/HW 0.52–0.55 (A 0.54, n=5); vertex hardly ridged; antennal club shorter than 7 preceding segments together; terminal segment of maxillary palpus moderately swollen, widened towards the middle, thence subparallel-sided apicad, with roundly truncate apex; occipital area with short, forwardly recumbent hairs, which neither reach nor extend beyond the vertex.

Pronotum transverse and moderately convex, PL/PW 0.60–0.64 (A 0.62, n=5); anterior margin rimmed and glabrous; lateral margins straight in anterior halves, sharply curved approximately at the middle, straight or slightly emarginate in posterior halves; anterior and posterior angles obtuse; posterior margin with a wide transverse ridge conspicuous except for a part near the median line; disc entirely glabrous, smooth, sparsely and finely punctate in central area, more densely so near sides, the punctures seemingly somewhat coarser near sides than those in central area because



Figs. 1–2. *Latipalpus* spp. —— 1, *L. palpalis* MOSER, ♂; 2, *L. fujiokai* T. ITOH, sp. nov., ♂.

the surroundings of the former are more noticeably concave.

Elytra inconspicuously costate, sutural costa gradually widened in basal 2/5 and thence subparallel-sided apicad, 2nd costa very weakly raised, slightly widened apicad and wider than 1st interval in posterior half of elytron; 3rd costa narrower than 2nd, slightly wider than 2nd interval; 4th costa greatly reduced and 5th absent; epipleuron conspicuous to the level of 2nd sternite, reaching the level between 4th and 5th sternites; marginal membrane extending to sutural angle. Scutellum with fine, dense punctures except for a part along the median line. Pygidium slightly convex, smooth, with somewhat dense and coarse punctures, which are coarser than those on pronotum. Prosternum with a somewhat bidentate (M-shaped), transverse post-coxal process. Metasternum, mesepimeron, metepisternum and metacoxa with long, rather dense, yellowish hairs.

Legs slender, FW/FL 0.30–0.32 (A 0.31, n=5). Femora sparsely covered with hairs, sparsely and finely punctate; metafemur with rather short hairs along upper margin, which are up to 2/5 times the width of metafemur, and also with a row of short setae on surface, which are up to 2/9 times the width of metafemur. Protibia rather elongate, tridentate, with 1st denticle inconspicuous, nearer to apex than to base (at basal 0.51–0.55 (A 0.53)). Longer one of metatibial spurs as long as 1st metatarsal segment, which is slightly longer than the 2nd. Protarsi extremely elongate. Each claw gently curved apicad, with a sharp denticle near base in anterior legs, without a denticle or sometimes with a small one near base only in inner claw in middle legs, with a small, sharp denticle only in inner claw and without a denticle in outer claw in posterior legs.

Male genitalia somewhat flattened; each paramere forming a gradually narrowed and bluntly pointed projection, which extends to the ventral surface so as to contact with each other; internal sac with arms and elliptical piece, the arms each moderately stout and gently curved throughout, strongly bent near apex and possessing a very inconspicuous mushroom-shaped tubercle at apex, the elliptical piece possessing a longitudinal thick sclerite along its median line.

Female. CW/CL 2.9–3.3 (A 3.1, n=3), eyes not prominent, IN/HW 0.56–0.57 (A 0.57, n=2), antennal club as long as or shorter than 6 preceding segments together, occiput sparsely with short, forwardly recumbent hairs. PL/PW 0.62–0.65 (A 0.63, n=3). Pygidium subtly various in shape: flattened, weakly bituberculate, and convex along the median line. Metafemora more swollen than in male, FW/FL 0.33–0.37 (A 0.35, n=3), metafemoral hairs along upper margin up to 2/5 times the width of metafemur, metafemoral setae on surface up to 1/3 times the width of metafemur. Protibia robust, with 1st denticle at basal 0.57–0.59 (A 0.58). Protarsi short. Longer one of metatibial spurs as long as 1st metatarsal segment, which is slightly longer than the 2nd. Each claw with a denticle, the denticles of inner and outer claws of the same shape in all legs.

Distribution. Northern Borneo.

Specimens examined. 1♀ (type), with 2 labels inscribed "N Borneo Kina Balu WATERSTRADT S.", "*Latipalpus palpalis* MOS Type"; 1♀, "Kinabalu Borneo 1500 m", "*palpalis* MOS"; 1♀, "Kina-Balu Geb. 1500 m Coll. WATERSTRADT"; 2♂♂, Mt. Kinabalu, 1500 m, Sabah, Malaysia, 29–IV–1994. H. MATSUDA leg.; 1♀, near P. H. Q., Mt. Kinabalu, Sabah, N Borneo, XI–1994; 1♂, near Keningau, Sabah, N Borneo, 1–IV–1985; 1♂, 16 miles, near Keningau, Sabah, N Borneo, 9–III–1988. One male specimen each is presented to ZMHU and MNHA, respectively.

Remarks. This species is very remarkable by the following male characters: at least outer claws of 4 posterior legs edentate, protarsi extremely long and eyes noticeably prominent.

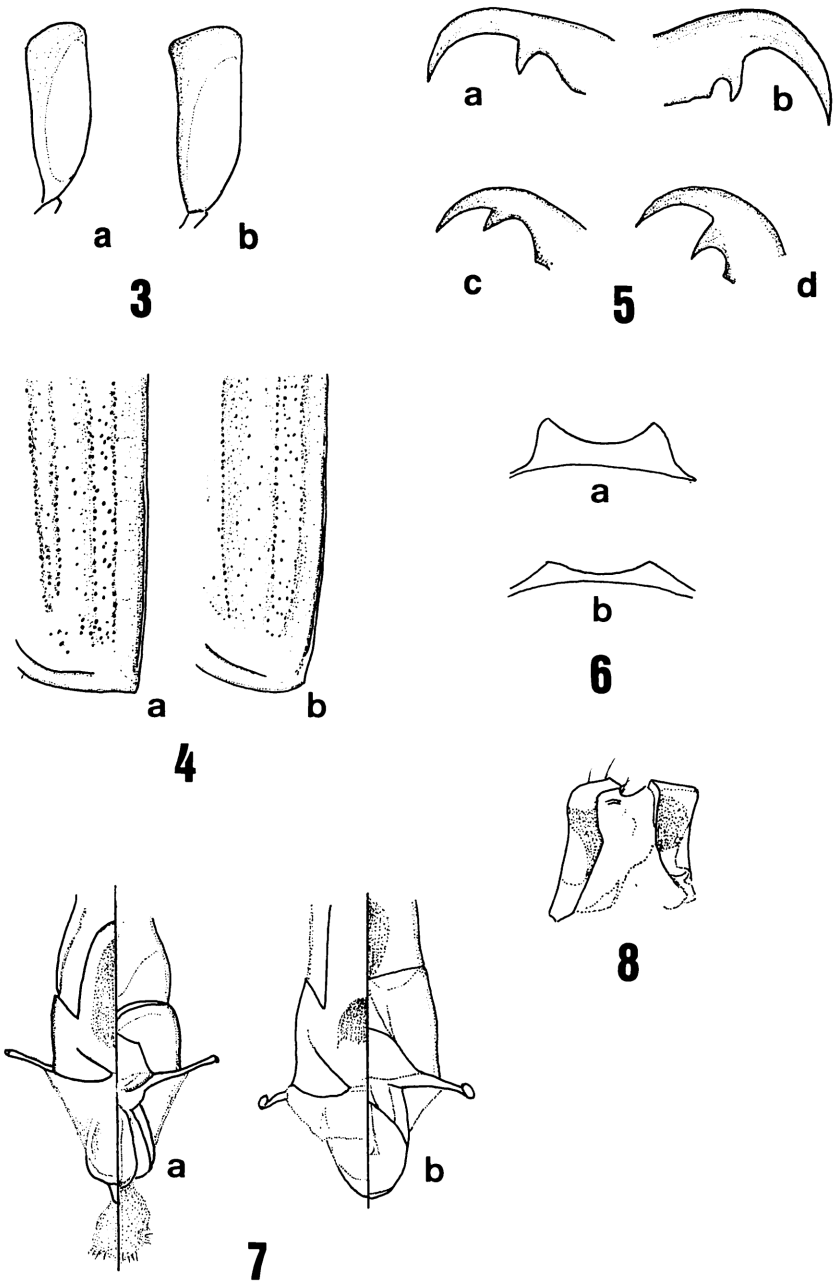
Latipalpus fujiokai T. ITOH, sp. nov.

(Figs. 2, 3 b, 4 b, 5 c–d, 6 b, 7 b, 8)

Description. Length: 19.0–25.5 mm.

Male. Head, pronotum, scutellum, tibiae and tarsi dark blackish brown, femora and ventral surface dark brown to light brown, antennae, maxillary palpi, elytra and pygidium light brown; dorsal surface almost opaque and glabrous; ventral surface opaque and densely haired, though the abdomen is glabrous and the femora are bluntly shining and sparsely haired. Body noticeably elongate and slender.

Head almost flattened, moderately densely with coarse punctures; clypeus transverse, densely and very coarsely punctate, CW/CL 3.2–3.7 (A 3.4, n=6), frontoclypeal suture biarcuate; eyes noticeably prominent, IN/HW 0.55–0.57 (A 0.56, n=6); vertex uniformly and inconspicuously raised; antennal club as long as or feebly shorter



Figs. 3–8. —— 3. Terminal segment of maxillary palpus; a: *L. palpalis*; b: *L. fujiokai* sp. nov. —— 4. Apical portion of elytron; a: *L. palpalis*; b: *L. fujiokai* sp. nov. —— 5. Inner claw of fore leg; a: *L. palpalis*, ♂; b: ditto, ♀; c: *L. fujiokai* sp. nov., ♂; d: ditto, ♀. —— 6. Prosternal process; a: *L. palpalis*; b: *L. fujiokai* sp. nov. —— 7. Male genitalia (right half: dorsal side; let half: ventral side); a: *L. palpalis*; b: *L. fujiokai* sp. nov. —— 8. Female genitalia of *L. fujiokai* sp. nov.

than 7 preceding segments together; terminal segment of maxillary palpus somewhat slender, gradually widened towards the middle, thence subparallel-sided apicad, with bluntly truncate apex; occipital area densely with short, forwardly recumbent hairs, which do not extend beyond the vertex.

Pronotum transverse and moderately convex, PL/PW 0.62–0.64 (A 0.63, n=6); anterior margin rimmed and glabrous; lateral margins straight in anterior halves, sharply curved approximately at the middle, straight or sometimes feebly emarginate in posterior halves; anterior and posterior angles subrectangular; posterior margin with a wide transverse ridge conspicuous approximately throughout, the ridge becoming irregularly deformed (seemingly serrate) by a row of elliptical punctures; disc glabrous, smooth, sparsely and finely punctate in central area and more densely so near sides.

Elytra inconspicuously costate, sutural costa gradually widened in basal 1/3 and thence subparallel-sided apicad, 2nd costa very weakly raised, gradually widened apicad and wider than 1st interval in posterior half of elytron, considerably close to sutural costa near apex, 3rd costa distinctly narrower than 2nd and wider than 2nd interval, 4th and 5th costae absent; epipleuron recognized to the level of 1st sternite and reaching the level of apical callus; marginal membrane extending to sutural angle. Scutellum sparsely with fine punctures. Pygidium slightly convex, very slightly rugose and somewhat densely covered with coarse punctures, which are coarser than those on pronotum. Prosternum with a shallowly M-shaped, transverse post-coxal process.

Legs shining, slender, FW/FL 0.31–0.33 (A 0.32, n=6). Femora sparsely covered with short hairs; metafemora with somewhat long hairs along upper margin, which are shorter than half the width of metafemur, and also with a row of short setae on surface, which are up to 1/5 times the width of metafemur; profemora coarsely and sparsely punctate, mesofemora finely and more densely so, metafemora finely and sparsely so. Protibia rather elongate, bidentate, with 1st denticle almost vestigial. Longer one of metatibial spurs longer than 1st metatarsal segment, which is as long as or sometimes feebly longer than the 2nd. Protarsi rather elongate. Each claw gently curved apicad, with a blunt denticle near the middle in 4 anterior legs and near base in posterior legs; all the denticles of outer and inner claws of the same shape.

Male genitalia somewhat flattened; each paramere forming a strongly narrowed projection apicad, which does not extend so as to contact with each other on the ventral surface; internal sac with arms and elliptical piece, the arms each moderately stout, straight to basal 3/5, thence rather strongly bent and possessing a noticeable mushroom-shaped tubercle at apex.

Female. Body larger and more robust. CW/CL 3.0–3.6 (A 3.2, n=5), eyes not prominent, IN/HW 0.60–0.63 (A 0.62, n=4), antennal club approximately as long as 6 preceding segments together. PL/PW 0.59–0.66 (A 0.63, n=5), abdomen uniformly swollen. Meso- and metafemur stouter than in male, FW/FL 0.35–0.38 (A 0.36, n=5). Metafemoral hairs along upper margin up to 1/4–3/10 times the width of metafemur; metafemoral setae on surface longer than in male, up to 1/3 times the width of metafemur. Protibia robust, tridentate, with 1st denticle distinct, nearer to apex than to base

(at basal 0.51–0.58 (A 0.54)). Protarsi conspicuously short. Longer one of metatibial spurs as long as or longer than 1st metatarsal segment, which is as long as the 2nd. Each claw obviously more strongly bent, with a denticle sharper and closer to base than in male. Female genitalia as shown in Fig. 8.

Distribution. Northern Borneo.

Holotype: ♂, Keningau, Sabah, N Borneo, 28–V–1987. Paratypes: 2♂♂, 1♀, same locality as for holotype, 23~27–III–1985; 2♂♂, same locality, 17–II~14–IV–1985; 1♀, Keningau, 1–IV–1985; 1♀, 16 miles NW of Keningau, alt. 1,400 m, Sabah, N Borneo, 12–II–1982; 1♀, same locality, 12~19–VIII–1983; 1♂, N Borneo, 27–V–1988; 1♀, Head Quarter, Sabah, Borneo, 22–VIII–1981, Y. JOHKI leg. The holo- and 1 paratypes are deposited in MNHA, 2 paratypes in ZMHU, and 7 paratypes in the author's collection.

要　　約

伊藤　武：スンダ列島のクロコガネ *Latipalpus* 属の分類学的研究，III. —— 今回，*Latipalpus* 属の1新種，*L. fujiokai* をボルネオ島北部より記載し，*L. palpalis* MOSER の再記載を行った．さらに既知7種を含む検索表を作成した．

Reference (Additional)

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Elytra, *Tokyo*, **27** (2): 451–452, November 13, 1999

A Synonym and a New Record in the Genus *Glipa* (Coleoptera, Mordellidae) from Taiwan

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Glipa (*Macroglipa*) *shirozui takashii* NOMURA was described from Taiwan on the basis of a single male specimen. It is, however, doubtless that it is identical with *Glipa* (*Macroglipa*) *formosana* PIC (redescribed by ERMISCH, 1940), according to my reexamination of the holotype. I

am going to suppress *takashii* as a junior synonym of the latter.

Glipa (*Macroglipa*) *formosana* PIC

Glipa formosana PIC, 1911, Échange, **27**: 190 [partim]. —— ERMISCH, 1940, Ent. Bl., **36**: 163, fig. 2. —— NAKANE, 1950, Trans. Kansai ent. Soc., **15**: 21 [partim]. —— TAKAKUWA, 1977, Coleopterists' News, Tokyo, (39): 5; 1985, Coleopt. Japan Col., Osaka, **3**: 380, pl. 65, fig. 34; 1986, Ent. Pap. pres. Kurosawa, Tokyo, pp. 258, 259, figs. 1, 5, 9.

Glipa (*Macroglipa*) *shirozui takashii* NOMURA, 1967, Ent. Rev. Japan, **19**: 8, fig. 3. [*Syn. nov.*]

Glipa (*Macroglipa*) *shirozui* NAKANE

Glipa shirozui NAKANE, 1949, Mushi, Fukuoka, **20**: 39, fig. 1.

This large species has hitherto been known from Japan (Honshu, Shikoku, Kyushu, Mikura Island of the Izu Islands, Tsushima Islands off northern Kyushu, Yaku-shima Island of the northern Ryukyus), China and Taiwan, the last one of which is based only on the record by NOMURA (1967) clarified above to be due to his misidentification. However, true *Glipa shirozui* is actually distributed in Taiwan. I herewith record it below.

1 ♀, Hsuayuan, Taoyuan Hsien, northern Taiwan, 23–VII–1986, Y. UEDA (in my coll.).

The Taiwanese specimen perfectly agrees with Japanese ones except for the pygidium which is slenderer and more distinctly carinate with median cicatrix.

I deeply thank Mr. Yasuyuki UEDA of Fujisawa in supplying me with valuable materials of Taiwanese *Glipa*, and to Mr. Teruhisa UENO of the Entomological Laboratory, Faculty of Agriculture, Kyushu University for giving me the privilege of reexamining the holotype of *Glipa* (*Macroglipa*) *shirozui takashii* NOMURA.

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Elytra, *Tokyo*, **27** (2): 453–462, November 13, 1999

Dung Beetles (Coleoptera, Scarabaeidae) of Thailand

Part 1. Genus *Synapsis*

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Abstract In the first part of the study on the dung beetles from Thailand, the genus *Synapsis* is dealt with. Three new species are described under the names *S. kiuchii* sp. nov., *S. dickinsoni* sp. nov. and *S. boonlongi* sp. nov. A key to all the *Synapsis* species distributed in Thailand and explanatory photographs are also provided.

Introduction

Although there are nearly 5,000 described dung beetles belonging to 234 genera of about 12 tribes on the world basis classification (HANSKI & CAMBEFORT, 1991), the dung beetle fauna of Thailand is still very poorly known as compared with other faunas, such as those of Taiwan, Borneo, etc.

One of the authors (K. M.) has contributed much to the survey and identification of the fauna of the dung beetles, Scarabaeidae, Aphodiidae and Trogidae, in North Thailand over the past 10 years, but those of other areas in Thailand are still very little known. The authors have fully realized the necessity of more detailed surveys covering the whole areas of Thailand.

In recent years, Thailand has become much concerned at the loss of biological diversity. Therefore, the Thai Government has set up a programme known as the Biodiversity Research and Training (BRT) to document the biodiversity research and training. Fortunately, the authors have been given a grant from the BRT for conducting a pilot study of the dung beetle fauna of Northeast Thailand and intend to extend this to a full survey of the fauna of Thailand.

This paper is the first contribution of a planned series concerning the Thai dung beetles and deals with the genus *Synapsis* of the tribe Coprini in the family Scarabae-

idae. All the other tribes, genera and species distributed in Thailand will be described by the present authors in forthcoming papers of this series. When this is completed, keys to them will be given in the last part of the series.

The depositories of the holotypes to be designated are the collections of the following museums: DEZ – Insect Museum in the Division of Entomology and Zoology, Department of Agriculture, Ministry of Agriculture and Cooperatives, Bangkok, Thailand; NSMT – National Science Museum (Nat. Hist.), Tokyo, Japan.

Systematic Position of the Genus *Synapsis*

In his study of the "Fauna of British India, including Ceylon and Burma", ARROW (1931) placed the genus *Synapsis* BATES in the tribe Coprini of the subfamily Coprinae, which consists of the Scarabaeini, Sysiphini and Coprini. The tribe Coprini *sensu* ARROW included the genera *Synapsis*, *Heliocopris*, *Catharsius*, *Copris*, *Phalops*, *Anoctus*, *Dispysema*, *Caccobius*, *Onthophagus*, *Phacosoma*, *Parachorius*, *Cassolus*, *Liatongus*, *Oniticellus*, *Drepanocerus*, *Onitis* and *Chironitis*.

In his study of the "Coléoptères Scarabéides de l'Indochine", PAULIAN (1945) regarded this genus as a member of the subfamily Scarabaeinae. His subfamily covered the tribe Coprini *sensu* ARROW.

In his monograph of the Scarabaeidae and Aphodiidae from the Palearctic and Oriental Regions, BALTHASAR (1963) treated this genus as a member of the tribe Coprini in the subfamily Coprinae. The tribe consists of 4 genera: *Synapsis*, *Heliocopris*, *Catharsius* and *Copris*.

Recently, in their studies on the family Scarabaeidae from Borneo, OCHI, KON and KIKUTA (1996) treated this genus as a member of the tribe Coprini in the subfamily Coprinae. The tribe Coprini from this area consists of 4 genera: *Synapsis*, *Catharsius*, *Copris* and *Microcopris*.

Genus ***Synapsis*** BATES, 1868

Synapsis BATES, 1868, Coleopt. Hefte, **4**: 89. Type species: *Copris brahminus* HOPE.
Homalocopris SOLSKY, 1871, Horae. Soc. ent. ross., **8**: 136.

General features. Body rather depressed oval. Head broad, with outer angles strongly produced in front of eyes; clypeus acutely notched at the middle; genae completely fused with clypeus; frons with a median tubercle or an elevation. Antennae short, nine-segmented, with 4th segment a little longer than 3rd, 5th and 6th very short, the last three entirely pubescent.

Pronotum short, with a supplementary lateral carina on each side, uniting in front and behind with outer marginal carina, and enclosing a lenticular space; front angle mostly bearing two or three teeth, hind angle obtuse or almost rounded. Scutellum absent.

Elytra ten-striate, though the 7th striae are often unclear, with rather straight or

rounded sides, sharp lateral carinae, and broad epipleura.

Metasternum long, the hinder part a little produced in the middle, with a rather deep depression, the sides divided transversely by a raised and rather irregularly curved line, extending from end of middle coxal cavity to outer margin.

Legs fairly long but not very slender; mesocoxae widely separated and parallel; protibia with three strong teeth, the terminal one long and blunt; meso- and metatibiae slender at bases, gradually dilated apicad, with digitate apices; protarsi rather short and stout, meso- and metatarsi with diminishing triangular segments, moderately long and not very broad.

Notes. Remarkable characteristics distinguishing this genus from species of the other genera in the tribe Coprini are the body not so strongly convex, with pronotum bearing two strong lateral carinae joining in front and behind, protibia with three lateral teeth, meso- and metatibiae without distinct transverse carina on the outer side, etc.

It is very interesting that some species of this genus possess haired hollows near the front angles of the prosternum (Fig. 8), or on the mesepimera (Fig. 9). In some species, the 2nd elytral intervals possess vague swellings near the base. These characters furnish the best diagnoses for identifying the species.

The species of the genus *Synapsis* do not show prominent sexual dimorphism, though we can barely recognize it by the shortened abdominal segments in the male.

Distribution. Oriental and Palearctic Regions.

Description of the New Species

Synapsis kiuchii sp. nov.

(Figs. 2, 7, 12 & 13)

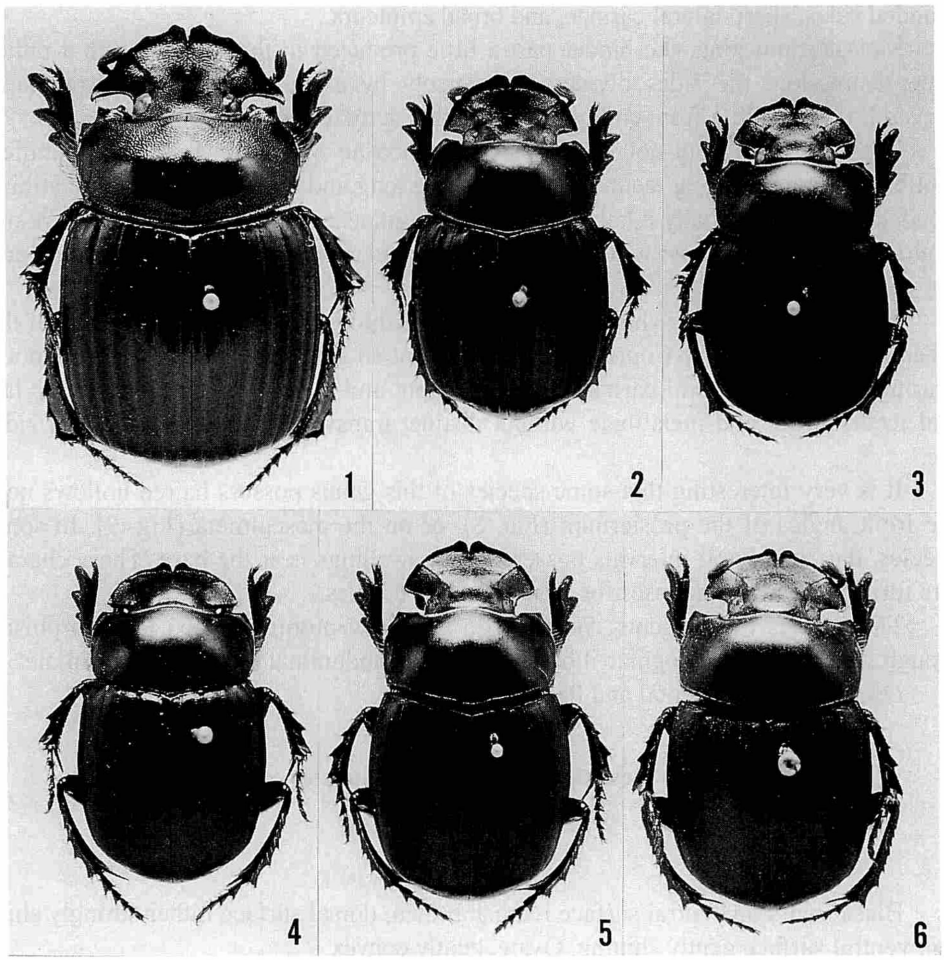
Black, hairs on ventral surface reddish brown; dorsal surface rather strongly shining, ventral surface gently shining. Ovate, gently convex.

Head rather wide, moderately punctate, the punctures varying to rugosities in middle part; clypeus cleft at the middle of front margin, produced and almost vertically reflexed above on each side of the cleavage; frons with a tubercle at the middle; genae somewhat granulate in inner portions, acutely angulate at outer angles, with hind edges weakly emarginate; vertex very slightly depressed.

Pronotum transverse, micro-aciculate, minutely punctate; front angles obtusely angulate, with front edges very feebly sinuous; hind angles almost rounded; base widely triangularly produced.

Elytra finely striate, punctures in the striae almost invisible; intervals micro-aciculate, weakly convex, 1st ones more noticeably so than the others; sides gently declined to lateral margins, which are evenly produced laterad.

Pygidium feebly convex, somewhat coriaceous, rather frequently scattered with punctures. Metasternum alutaceous, minutely and shallowly punctate in anterior por-

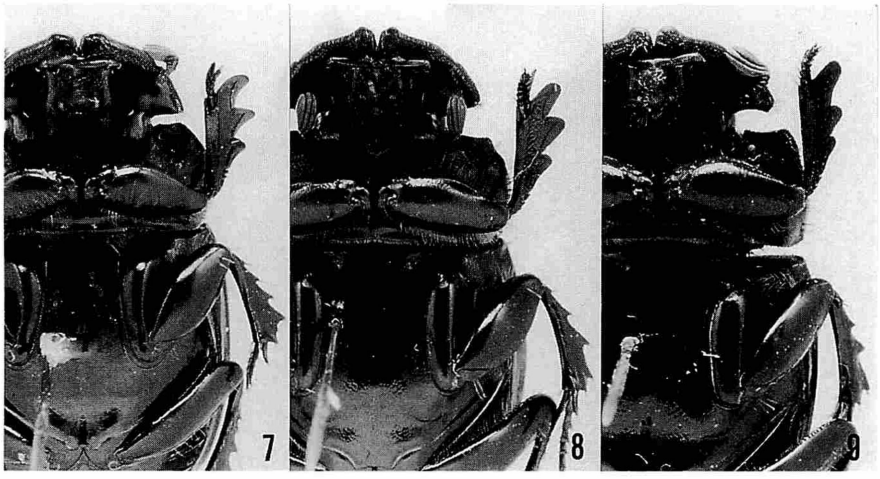


Figs. 1–6. Habitus of *Synapsis* spp. —— 1, *S. tridens* SHARP, ♂; 2, *S. kiuchii* sp. nov., holotype ♂; 3, *S. birmanicus* GILLET, ♂; 4, *S. ochii* MASUMOTO, holotype ♂; 5, *S. dickinsoni* sp. nov., holotype ♂; 6, *S. boonlongi* sp. nov., holotype ♂.

tion, micro-aciculate in middle, with a short longitudinal impression and a transverse depression in posterior part. Anterior margins of 2nd to 5th abdominal sternites ridged on each side. Metafemur without spine at posterior edge.

Body length: 23–25 mm.

Holoype: ♂, Doi Angkhang, Fang Dist., Chiang Mai Prov., N. Thailand, 23–VI–1992, Y. MANIT leg. (NSMT). Paratypes: 1 ex., Maesa Vill., Chiang Mai Prov., 14–IX–1988, K. MASUMOTO leg. (DEZ); 4 exs., Measa Vill., Chiang Mai Prov., 4–VII–1988, K. MASUMOTO leg.; 4 exs., Maesa Vill., Chiang Mai Prov., 14–VIII–1994, K. MASUMOTO leg.; 1 ex., Maesa Vill., Chiang Mai Prov., 30–VIII–1987, Y. MANIT leg.; 1 ex.,



Figs. 7–9. Ventral surfaces of *Synapsis* spp. —— 7, *S. kiuchii* sp. nov., lacking haired hollows near the front angle of prosternum and mesepimeron; 8, *S. dickinsoni* sp. nov., bearing a haired hollow near the front angle of prosternum; 9, *S. boonlongi* sp. nov., bearing a haired hollow on mesepimeron.

Phrao Dist., Chiang Mai Prov., 1～10–VI–1987, Y. MANIT leg.

Notes. This new species resembles *S. simplex* SHARP, 1875, from Laos, in lacking haired hollows near the front angles of the prosternum or on the mesepimera, but can be distinguished from the latter by the body more rounded, with head more acutely angular laterad, pronotum with lateral margins not notched at apical 1/3, and front angles less remarkably produced.

Synapsis dickinsoni sp. nov.

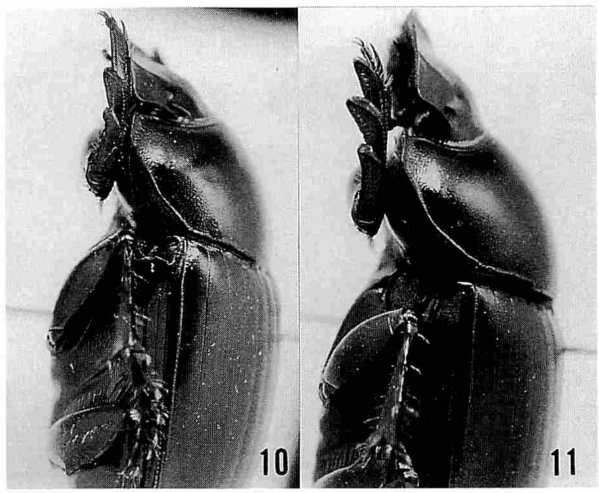
(Figs. 5, 8, 11, 18 & 19)

This new species closely resembles *Synapsis ochii* MASUMOTO, 1996 (Figs. 4, 10, 16 &17), but can be distinguished from the latter by the following characteristics:

Black, hairs on ventral surface reddish brown; each surface gently shining. Ovate, gently convex.

Head slightly narrower, rugulose in anterior part, closely and more clearly punctate in middle; clypeus slightly more produced anteriad, cleft at the middle of front margin; frons gently raised in middle; genae granulate, more strongly sinuous before eyes; vertex weakly, somewhat transversely depressed.

Pronotum convex, somewhat transversely micro-aciculate, minutely punctate; sides gently inclined, with area between two lateral ridges not becoming narrower basad; front angles subrectangular and very weakly reflexed upwards, with feebly emarginate front edges and weakly sinuous outer (side) edges; hind angles modified, the corner of upper margin being faintly impressed from oblique dorsal side, thus, the



Figs. 10–11. Lateral view of fore body of *Synapsis* spp. —— 10, *S. ochii* MASUMOTO; 11, *S. dickinsoni* sp. nov. (showing an impression at the hind angle of upper margin of pronotum).

upper margin is somewhat rounded and the lower margin angulate in dorsal view; apex more produced in middle; base very widely triangularly produced.

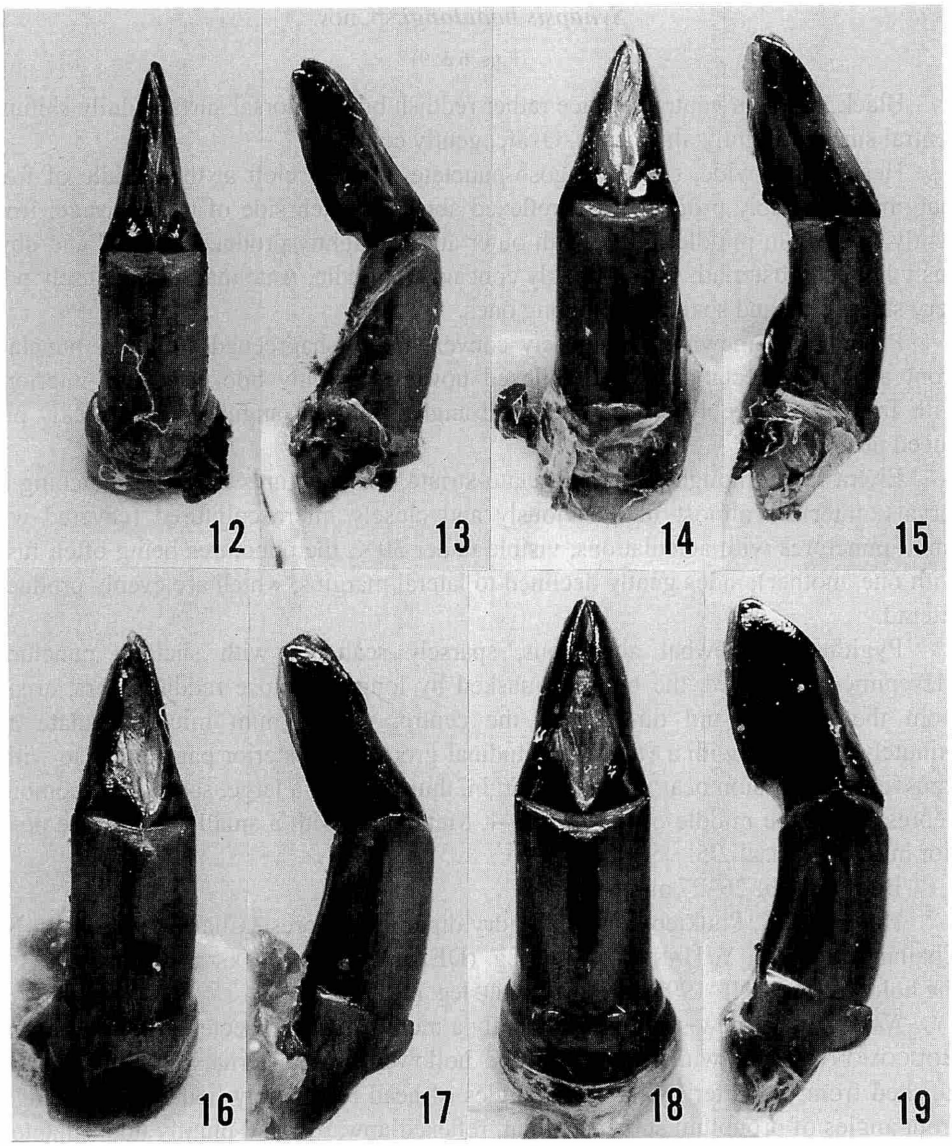
Elytra finely striate, punctures in the striae slightly finer; intervals less coarsely microsculptured, very slightly convex, 2nd interval with a vague swelling near base.

Pygidium wider though less produced apicad and less noticeably convex, microshagreened and scattered with minute granules. Front angles of prosternum with haired hollows. Metasternum with a longitudinal impression and a transverse depression, which are obviously shallower than in *S. ochii*. Metafemur with a spine before the middle on posterior edge; metatrochanter with bristles on posterior edge. Male genitalia larger and stouter.

Body length: 26–28.5 mm.

Holotype: ♂, Phukieo, 1,000 m alt., evergreen forest, Chaiyaphum Prov., NE. Thailand, 10–VII–1998, C. DICKINSON leg. (DEZ). Paratypes: 1 ex., same data as for the holotype; 10 exs., same locality and collector as for the holotype, 29–V–1998; 4 exs., same locality and collector as for the holotype, 26–VI–1998; 1 ex., Phukieo, 800 m alt., pine–dipterocarp, 31–X–1998, C. DICKINSON leg.; 3 exs., same locality and collector, 25–V–1998; 1 ex., same locality and collector as for the holotype, 16–X–1998, 1 ex., 11–IX–1998, 2 exs., 18–XII–1998; 1 ex., Phukieo, 9–VI–1998, S. PIMPASALEE leg.; 2 exs., Ban Phrom Song, 800 m alt., evergreen forest, Chaiyaphum Prov., 2–XII–1998, K. MASUMOTO leg. (NSMT).

Notes. This new species is a member of the species-group of *S. birmanicus* GILLET, 1907 (Figs. 3, 14 & 15) in having the haired hollows near the front angles of prosternum. The nearest species except *S. ochii* might be *S. yama* GILLET, 1911, originally described from Vietnam and Laos, but can be distinguished from the latter by the



Figs. 12–19. Male genitalia of *Synapsis* spp. —— 12–13, *S. kiuchii* sp. nov., dorsal view (12), and lateral view (13); 14–15, *S. birmanicus* GILLET, dorsal view (14), and lateral view (15); 16–17, *S. ochii* MASUMOTO, dorsal view (16), and lateral view (17); 18–19, *S. dickinsoni* sp. nov., dorsal view (18), and lateral view (19).

head with lateral angles less acutely produced, and the pronotum with more rounded sides and impressed hind angles.

Synapsis boonlongi sp. nov.

(Figs. 6 & 9)

Black, hairs on ventral surface rather reddish brown; dorsal surface dully shining, ventral surface slightly alutaceous. Ovate, gently convex.

Head rather wide, closely rugoso-punctate; clypeus cleft at the middle of front margin, remarkably produced and reflexed above on each side of the cleavage; frons gently swollen in middle; genae with outer angles slightly produced laterad and obviously hooked posteriad; vertex weakly concave in middle. Antennal clubs densely with very short hairs and sparsely with long ones.

Pronotum somewhat transversely convex, micro-shagreened, minutely punctate; front angles subrectangular and reflexed upwards, bluntly hooked antero-interiorly, with front edges feebly emarginate; hind angles obtusely angular; base weakly produced posteriad.

Elytra finely though clearly punctato-striate, the punctures small but notching intervals; intervals almost flat, obviously and closely microsculptured (covered with small punctures with aciculations, visible under 30×, the punctures being often fused with one another); sides gently declined to lateral margins, which are evenly produced laterad.

Pygidium somewhat alutaceous, sparsely scattered with shallow punctures. Mesepimera hollowed, the hollows masked by long and close reddish hairs, arising from the margins and directed to the centre; metasternum micro-aciculate and minutely punctate, with a vague longitudinal groove in posterior part, and also with a transverse depression near posterior margin, thus forming a large, somewhat rhombical depression in the middle of posterior 1/4. Metafemur with a small spine at the posterior margin at basal 2/5.

Body length: 26–27 mm.

Holotype: ♂, Phukieo, 800 m alt., dry dipterocarp forest, Chaiyaphum Prov., NE. Thailand, II–1998, Y. HANBOONSONG leg. (DEZ). Paratype: 1 ex., same locality as for the holotype, 12–VII–1998, S. PIMPASALEE leg. (NSMT).

Notes. This new species is evidently a member of the species-group of *S. ovalis* BOUCOMONT, 1916, which possesses the hollowed mesepisterna, but can be distinguished from the latter by the outer angles of head remarkably hooked posteriad, the front angles of pronotum subrectangular, reflexed upwards, and bluntly hooked antero-interiad, and the front edges feebly sinuate. Beside the above two species, *S. gilleti* ARROW, 1931, from Bengal is also a member of this species-group.

Key to the Species of the Genus *Synapsis* from Thailand

1 (4) Front angles of prothorax or mesepimera without haired hollows; frons with a tubercle at the middle.

2 (3) Lateral angles of head produced into very slender acuminate processes; pro-

notum with tridentate front angles, a prominence at the middle near front margin, a transverse, smooth and shining swelling in posterior half, and also with surface granulate except for the swelling; 30–36 mm; India, Myanmar, N. Thailand, Laos, Vietnam, China (Fig. 1) ..... *S. tridens* SHARP.

3 (2) Lateral angles of head not slenderly produced but just triangular; pronotum with front angles obtusely angulate, without prominence and swelling, the surface not granulate, but almost smooth and minutely punctate (*S. simplex* group); 24–27 mm; N. Thailand (Fig. 2) ..... *S. kiuchii* sp. nov.

4 (1) Front angles of prosternum or mesepimera with haired hollows.

5 (10) Haired hollows on front angles of prosternum (*S. birmanicus* group); lateral angles of head not hooked; front angles of pronotum not reflexed above.

6 (7) Elytra with second interval lacking a vague swelling near base; pronotum with outer margins of front angles noticeably sinuous; 23–27 mm; Myanmar, N. Thailand (Fig. 3) ..... *S. birmanicus* GILLET.

7 (6) Elytra with second interval bearing a vague swelling near base; pronotum with outer margins of front angles less noticeably sinuous.

8 (9) Pronotum with hind angles not impressed from oblique dorsal side but simply obtusely angulate, area between two lateral ridges wider but becoming narrower basad; 22–26 mm; N. Thailand (Fig. 4) ..... *S. ochii* MASUMOTO.

9 (8) Pronotum with hind angles faintly impressed from oblique dorsal side, thus the upper margin being somewhat rounded and the lower one angulate in dorsal view; area between two lateral ridges narrower but not becoming narrower basad; 26–28.5 mm; NE. Thailand (Fig. 5) ..... *S. dickinsoni* sp. nov.

10 (5) Haired hollows on mesepimera (*S. ovalis* group); lateral angles of head feebly hooked posteriad; front angles of pronotum weakly reflexed dorsad; 26–27 mm; NE. Thailand (Fig. 6) ..... S. *boonlongi* sp. nov.

Acknowledgement

First of all, the authors wish to express their acknowledgment to the Thailand Biodiversity Research and Training Programme for giving them the grant. They are deeply indebted to Dr. R. W. EMBERSON, Lincoln University, New Zealand for his participation and help for preliminary identification of dung beetles from Northeast Thailand. They also thank Dr. Angoon LEWVANICH and Ms. Sommai CHUNRAM, Division of Entomology and Zoology, Department of Agriculture, Bangkok, for providing materials and invaluable comments concerning this study. Appreciation should also be expressed to Dr. Yves CAMBEFORT, Muséum National d'Histoire Naturelle, Paris, and Malcolm KERLEY, the Natural History Museum, London, for examining type specimens and other materials preserved in the Museums under their care. Thanks are also expressed to Dr. Makoto KIUCHI, Institute of Ministry of Agriculture, Forestry and

Fisheries, for taking many excellent photographs inserted in this paper, and to Mr. Teruo OCHI, Osaka Prefecture, and Syosuke FUJIOKA, Tokyo, for their assistance in various ways.

Finally, the authors deeply thank Dr. Shun-Ichi UÉNO, National Science Museum (Nat. Hist.), Tokyo, for his constant guidance in the course of the present study.

要　約

Y. HANBOONSONG・益本仁雄：タイ産の食糞コガネムシ類．I. *Synapsis*属について．—— タイ産の食糞コガネムシ（Scarabaeidae）研究の第1回として，ダイコクコガネ亜科（Coprinae）ダイコクコガネ族（Coprini）の*Synapsis*属を検討した．その結果，この地域には，*Synapsis tridens* SHARP, *S. birmanicus* GILLET, *S. ochii* MASUMOTOの3種のほかに，新たに3種の分布していることが判明した．それらを，*S. kiuchii* sp. nov., *S. dickinsoni* sp. nov., *S. boonlongi* sp. nov.と命名した．

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Elytra, *Tokyo*, **27** (2): 463–469, November 13, 1999

The Dung Beetle Fauna (Coleoptera, Scarabaeidae) of Northeast Thailand

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Abstract A list of the scarabaeine dung beetles collected from both cultivated and forested areas in Northeast Thailand is presented. Altogether 154 species of 15 genera in 7 tribes are recorded. The genus *Onthophagus* is the most diverse group in which 103 species were found. The genera *Caccobius*, *Cassolus*, *Panelus*, *Phacosoma* and *Sisyphus* are mainly confined to forested habitats, while the genera *Onitis* and *Oniticellus* occur very commonly in the dung of domestic animals. The ecological habitat of each dung beetle species found is also recorded.

Introduction

The dung beetles (Coleoptera, Scarabaeidae) are one of the most beneficial groups of insects ever known. With few exceptions, they feed as larvae and adults on the dung of vertebrates.

In spite of the important ecological and beneficial roles of dung beetles, very little is known about the dung beetles of Thailand as compared to those of other regions. On the world basis, classification and distribution of the Scarabaeidae, above the generic level, is generally better known than those of most other comparable sized groups of insects. Worldwide there are nearly 5,000 described species arranged in 234 genera

and 10–12 tribes (HANSKI & CAMBEFORT, 1991). This well developed understanding of the group is no doubt due to their economic importance and the spectacular morphological modifications of many species. Of all the world's regional faunas, that of Southeast Asia is probably the poorest known (HANSKI & KRIKKEN, 1991).

Records of species occurring in Thailand have been included in the three classic regional faunas covering parts of Southeast Asia (ARROW, 1931; PAULIAN, 1945; BALTHASAR, 1963 a, b,1964). More recently, MASUMOTO (1987, 1988, 1989 a–c, 1990, 1991, 1992 a, b, 1995, 1996) surveyed the fauna of the Scarabaeidae and Aphodiidae in Northwest Thailand and STEBNICKA (1992) published a summary, including previous published records, of the Aphodiidae known from Thailand. However, no work or publication of dung beetles from Northeast Thailand has been made before.

The Northeast Region of Thailand, usually called Isan, covers approximately 170,000 square kilometers or about 1/3 of the country. Most of the area is a high plateau with a height between 150–1,000 metres above sea-level. The boundaries of Northeast are connected with the Lao border to the north and the east, with Cambodia and the Centre Region to the south, and with the lower region of the North to the west.

Currently, we have a fund from the Thailand Biodiversity and Training Programme to conduct a one year pilot study of the dung beetle fauna of the Northeast Region of Thailand. We hope to be able to extend this to a full survey of the fauna of Thailand.

Methods

Nineteen provinces in the Northeast Region were surveyed in both cultivated and forested areas, Natural Parks and Wildlife Sanctuaries to sample the dung beetle fauna. Sampling was carried out throughout the year in several different ways such as hand searching directly on the dung pads, light trapping (only the dung beetles that are nocturnal and positively phototactic were caught) and pitfall traps baited with pig dung, rotten chicken, etc. Forest leaf litter was also collected and extracted with Berlese funnels to sample the small litter dwelling species.

Specimens have been sorted into morphological species, or recognizable taxonomic units, by eye or using binocular magnifiers. Identifications have then been made using reliably identified materials in the Insect Museum at the Department of Agriculture in Bangkok, and MASUMOTO'S collection in Yokohama. Some specimens were identified by comparing with the types and other materials preserved in the Natural History Museum, London, and Muséum National d'Histoire Naturelle, Paris. Others were determined from literature.

Results and Discussion

A total of 154 dung beetle species of the Scarabaeidae, of 15 genera in 7 tribes, were found in the Northeast Region (Table 1). This compares with 137 species of 22

genera collected by MASUMOTO in Northwest Thailand. Most dung beetle species are coprophagous, while a few species such as *Onthophagus tricornis* WIEDEMANN, etc., are necrophagous which feed on animal carrion, and *Onthophagus bonarae* ZUNINO, *Cassolus nudus* SHARP, etc., feed on rotting vegetable matters.

Richness of dung beetle species in the forested areas is greater than in the lowland or cultivated areas. This is possibly due to an abundant supply of food from animal biomass and vegetation in the forested areas where the areas are well preserved and protected for faunal and floral habitats. In contrast with the cultivated areas of the Northeast, there is a progressive decrease of cultivated farmlands and the domestic animals like cows and buffalos are gradually reducing number and being replaced by machine.

Of the 18 genera reported here, the genus *Onthophagus*, mainly found in the forested areas, is the most diverse group, of which 43 species were identified and approximately 60 species are still unknown. There are, almost certainly, a substantial number of additional *Onthophagus* species, in other forested habitats of Thailand. Therefore, further work should be carried out for this group.

The study has also shown that some dung beetle genera are restricted to one kind of habitat, such genera as *Catharsius*, *Onitis* and *Oniticellus* are dominant in the lowland or cultivated areas while other genera like *Caccobius*, *Cassolus*, *Panelus*, *Phacosoma* and *Sisyphus* are confined to forested habitats. Since the genera *Onitis* and *Oniticellus* occur very commonly in the dung of domestic animals like cow and buffalo, the local people in the Northeast use the dung beetles as a food protein source. Particularly, *Oniticellus cinctus* (FABRICIUS) is the most favourite edible dung beetle species.

In conclusion, this study is the first report of dung beetles from the Northeast of Thailand and the data were accumulated only from one year study. However, we confidently expect the fauna of Northeast to be significantly larger than that documented here. With a comprehensive sampling programme, using various baited pitfall traps and litter extraction, in different forested areas, the number of identified species will, we are sure, increase significantly.

In addition to the Scarabaeidae, material of the Aphodiidae and Geotrupidae are also being accumulated for future reference. We have material of about a half of the 19 species of the Aphodiidae currently known from the Northeast of Thailand (STEBNICKA, 1992) and at least three species of the Geotrupidae have been collected.

Table 1. Dung Beetles from Northeast Thailand.

Species	Food sources	Habitats
Tribe Gymnopleurini		
Gymnopleurus (*Paragymnopleurus*) *melanarius* HAROLD	cow, pig, light trap	cultivated area
G. (*P.*) *rudis* SHARP	pig	cultivated area
G. (*P.*) *sinuatus* OLIVIER	barking deer, pig	forested area
G. (*Garreta*) *ruficornis* MOTSCHULSKY	cow, pig, light trap	cultivated area
Tribe Sisyphini		
Sisyphus maniti MASUMOTO	pig	forested area
S. longipes (OLIVIER)	pig	forested area
Sisyphus 1 sp. indet.	pig	forested area
Tribe Canthonini		
Panelus tonkinensis PAULIAN	wild cat	forested area
Phacosoma fallacilaetum MASUMOTO	wild cat, jackal	forested area
Cassolus nudus SHARP	gaur, mushroom	forested area
Tribe Coprini		
Synapsis birmanicus GILLET	pig	forested area
Synapsis 2 spp. indet.	pig	forested area
Heliocopris bucephalus (FABRICIUS)	cow, buffalo, gaur, banteng	cultivated & forested areas
H. dominus BATES	elephant	forested area
Catharsius birmanensis LANSBERGE	buffalo, cow, elephant, pig	cultivated area
C. javanus LANSBERGE	buffalo, cow, gaur, pig, light trap	cultivated area
C. molossus (LINNÉ)	buffalo, elephant	cultivated & forested areas
Copris angusticornis ARROW	elephant	forested area
C. carinicus GILLET	gaur	forested area
C. corpulentus GILLET	elephant, gaur	forested area
C. iris SHARP	buffalo, elephant	cultivated & forested areas
C. laevigatus GILLET	cow, samber deer, elephant, pig, light trap	cultivated & forested areas
C. nevinsoni WATERHOUSE	buffalo, cow, pig, light trap	cultivated area
C. sinicus HOPE	pig	cultivated area
C. (*Microcopris*) *vitalisi* GILLET	elephant, gaur, banteng	forested area
C. (*M.*) *reflexus* (FABRICIUS)	cow, buffalo, pig, gaur, elephant, light trap	cultivated area
C. (*Paracopris*) *cariniceps* FELSCHE	elephant, pig	forested area
C. (*P.*) *punctulatus* WIEDEMANN	elephant, cow	cultivated & forested areas
C. (*P.*) *furciceps* FELSCHE	elephant	forested area
Copris 2 spp. indet.	elephant	forested area
Tribe Onitini		
Onitis bordati CAMBEFORT	elephant	forested area
O. excavatus ARROW	elephant, gaur	forested area
O. virens LANSBERGE	cow, buffalo, pig	cultivated area
Onitis 3 spp. indet.	cow, buffalo, light trap	cultivated area

Table 1. (Continued).

Species	Food sources	Habitats
Tribe Oniticellini		
Drepanocerus striatulus PAULIAN	cow	cultivated area
Oniticellus cinctus (FABRICIUS)	cow, buffalo, gaur	cultivated area
O. tessellatus HAROLD	cow, buffalo	forested area
O. freyi BALTHASAR	cow, buffalo	cultivated area
Oniticellus 2 spp. indet.	cow, buffalo	forested area
Liatongus affinis (ARROW)	elephant, gaur, deer	forested area
L. gagatinus (HOPE)	elephant, gaur	forested area
L. phanaeoides (WESTWOOD)	pig	forested area
L. rhadamistus (FABRICIUS)	cow, buffalo, pig	cultivated area
L. tridentatus (BOUCOMONT)	elephant, gaur	forested area
L. venator (FABRICIUS)	cow	forested area
L. vertagus (FABRICIUS)	gaur, pig	forested area
Tribe Onthophagini		
Caccobius (*Caccophilus*) *unicornis* FABRICIUS	monkey, bird, pig, cow	forested area
Onthophagus aeropictus BOUCOMONT	pig	forested area
O. pilularius LANSBERGE	pig	forested area
O. balthasari VŠETETKA	elephant, wild cat, pig	forested area
O. bonorae ZUNINO	pig, rotten passion fruit	forested area
O. brutus ARROW	pig	forested area
O. coracinus BOUCOMONT	pig	forested area
O. crassicollis BOUCOMONT	monkey	forested area
O. dapcauensis BOUCOMONI	pig	forested area
O. doipuiensis MASUMOTO	pig	forested area
O. duporti BOUCOMONT	monkey	forested area
O. gracilipes BOUCOMONT	jackal, wild cat	forested area
O. hastifer LANSBERGE	cow, buffalo, gaur, light trap, banteng	cultivated area
O. jaccobeus BOUCOMONT	cow, pig	cultivated area
O. laevis HAROLD	elephant, pig	forested area
O. lindaae MASUMOTO	wild cat, monkey, silver pheasant	forested area
O. luridipennis BOHEMAN	cow, deer, porcupine, pig	forested area
O. maniti MASUMOTO	pig	forested area
O. naaroon MASUMOTO	pig	forested area
O. orientalis HAROLD	cow, buffalo, monkey, pig, light trap	cultivated area
O. pacificus LANSBERGE	pig	forested area
O. papulatus BOUCOMONT	cow, buffalo, pig, light trap	cultivated area
O. proletarius HAROLD	cow, buffalo, pig, light trap	cultivated & forested areas
O. phrutsaphakhomus MASUMOTO	rotten banana, pig	forested area
O. rudis SHARP	pig	forested area
O. sarawakus HAROLD	pig	forested area
O. taurinus WHITE	elephant, wild cat, pig	forested area
O. tragiodes BOUCOMONT	cow, buffalo, pig, light trap	cultivated area
O. trituber (WIEDEMANN)	monkey, buffalo, pig	cultivated area
O. (*Colobonthophagus*) *tragus* (FABRICIUS)	buffalo, banteng, gaur, pig, light trap	cultivated area

Table 1. (Continued).

Species	Food sources	Habitats
O. (*Digitonthophagus*) *bonasus* (FABRICIUS)	elephant, cow, buffalo, gaur, banteng	cultivated area
O. (*Indachorius*) *doisuthepensis* MASUMOTO	pig	forested area
O. (*Matashia*) *anguliceps* BOUCOMONT	elephant, pig	forested area
O. (*M.*) *avocetta* ARROW	pig	forested area
O. (*M.*) *manipurensis* ARROW	pig	forested area
O. (*Micronthophagus*) *falsivigilans* MASUMOTO	monkey, dog	forested area
O. (*Paraphanaeomorphus*) *jeanellianus* PAULIAN	pig	forested area
O. (*Parascatonomus*) *topali* ENDRÖDI	carrion trap	forested area
O. (*P.*) *tricornis* (WIEDEMANN)	cow, pig, dead snake, light trap	cultivated & forested areas
O. (*Proagoderus*) *mouhoti* HAROLD	cow, buffalo	cultivated area
O. (*Serrophorus*) *rectecornutus* LANSBERGE	buffalo, light trap	cultivated & forested areas
O. (*S.*) *sagittarius* (FABRICIUS)	cow, buffalo, banteng, gaur, light trap	cultivated area
O. (*S.*) *seniculus* (FABRICIUS)	cow, buffalo, elephant, banteng, pig, light trap	cultivated area
Onthophagus 60 spp. indet.	pig, cow, buffalo, jackal, light trap	forested area

* Though the species on the list is mainly arranged according to the BALTHASAR system (1963), some changes are given as regards subgeneric names and species described after it.

Acknowledgments

We would like to acknowledge the grant received from the Thailand Biodiversity Research and Training Programme. We also thank Dr. Angoon LEWVANICH in the Insect Museum at the Department of Agriculture, Bangkok, for arranging access to the collection of dung beetles and using facilities. Deep indebtedness should be expressed to Dr. Yves CAMBEFORT, Muséum National d'Histoire Naturelle, Paris, and Mr. Malcolm KERLEY, the Natural History Museum, London, for permitting us to examine types and other materials for determination.

要　　約

Y. HANBOONSONG・S. CHUNRAM・S. PIMPASALEE・R. W. EMBERSON・益本仁雄：東北タイの食糞性コガネムシ相．——東北タイに分布する食糞性コガネムシ（Scarabaeidae）について，耕作された地域と自然林の両方で採集をおこなった．その結果，合計7族，15属，154種がみとめられた．そのうち，エンマコガネ属（*Onthophagus*）がもっとも種数が多く103種である．コエンマコガネ属（*Caccobius*）および*Cassolus*, *Panelus*, *Phacosoma*, *Sisyphus*などの属はおもに自

然林内に生息し，*Onitis*属，*Oniticellus*属などは，家畜の糞にきわめて普通にみられた．添付した種名一覧表には，採集した糞虫が来集した糞の種類 および生息地域を併記した．

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Elytra, *Tokyo*, **27** (2): 470, November 13, 1999

A Record of *Glipa apicalis* PIC (Coleoptera, Mordellidae) from Thailand

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Glipa (*Macroglipa*) *apicalis* PIC (=*Glipa shibatai* NAKANE) has hitherto been known from Laos, northern Vietnam, South China (Yunnan & Hainan Is.), Taiwan and Japan (NOMURA, 1965; FAN & YANG, 1993; HORÁK, 1994). TAKAKUWA (1985) added northern Thailand to the distribution of *G. shibatai* on the basis of unrecorded materials. I herewith record the species formally from this country.

Specimens examined. [Northern Thailand] Doi Suthep, nr. Chiang Mai: 1♂, 1♀, 23–V–1978, K. & H. AKIYAMA leg.; 1♀, 12–V–1982, T. SHIMOMURA leg.; 1♀, 8–IV–1983, T. SHIMOMURA leg.; Chiang Dao, nr. Chiang Mai: 1♀, 2–V–1980, S. TSUYUKI leg.; Wieng Papao, Chiang Rai Pref.: 2♂♂, 1–V–1997, M. TAKAKUWA leg. (all in my coll.).

These specimens are doubtless identical with the holotype from Laos.

I am grateful to Messrs. S. TSUYUKI of Zushi, T. SHIMOMURA of Tokyo, H. AKIYAMA and the late K. AKIYAMA of Yokohama for their kindness in supplying with valuable materials used in this paper.

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Elytra, *Tokyo*, **27** (2): 471–474, November 13, 1999

Passalid Beetles (Coleoptera, Passalidae) Collected from Bhutan, with Description of the Male Genitalia of *Tiberioides austeni* GRAVELY[1)]

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Abstract Seven species of passalid beetles are recorded from Bhutan. The male genitalia are described and illustrated for the first time for *Tiberioides austeni* GRAVELY.

Relatively little is known about the passalid fauna of Bhutan, although a few species were recorded by GRAVELY (1914) and ARROW (1950): *Taeniocerus bicuspis* (KAUP), *Tiberioides kuwerti* (ARROW), *Ophrygonius cantori* (PERCHERON), *Aceraius grandis* (BURMEISTER), *Leptaulax dentatus* (FABRICIUS).

Recently, we had an opportunity to examine some passalid specimens collected from Bhutan, and recognized seven species. We record herewith the materials and describe the male genitalia of *Tiberioides austeni* GRAVELY for the first time. We adopt the terminology of LINDROTH (1957) in the description of male genitalia and refer to HINCKS and DIBB (1935) for the distribution of each species.

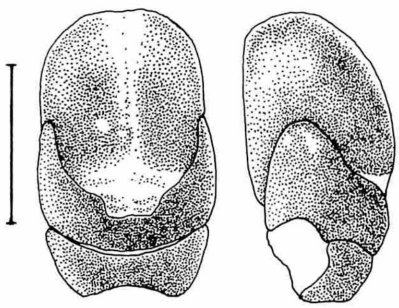
Tiberioides austeni GRAVELY

(Figs. 1–3)

Tiberioides austeni GRAVELY, 1914, Mem. Ind. Mus., **3**, p. 216.

1) This study is supported in part by Grants-in-Aid from the Ministry of Education, Science, Sports and Culture, Japan (Nos. 10041166, 11833007, 11833014).

Fig. 1. Ligula and mentum of *Tiberioides austeni* (scale: 2 mm).



Figs. 2–3. Male genitalia of *T. austeni* (scale: 2 mm), ventral view (2), and left lateral view (3).

Brief description. Mentum almost flat and with transverse roughened area in central portion, without transverse carina in postero-central portion, lateral margins converging anteriorly (Fig. 1). Side of elytron shining; lateral grooves of elytron narrow, with simple punctures.

Penis of male genitalia large, with longitudinal membranous area along middle line on ventral side, the area broadened distally in ventral view; parameres united on ventral side, as long as basal piece at middle in ventral view, distal margin gently curved and with a small quadrilateral nick at middle, latero-proximal end pointed proximally like a hook; distal margin of basal piece gently curved in ventral view, lateral margins divergent distally (Figs. 2–3).

Specimen examined. 1♂, E. Mera, 2,350 m in alt., Bhutan, 5~15–IX–1998.
Distribution. Assam, Bhutan.

Tiberioides kuwerti (ARROW)

Tiberius kuwerti ARROW, 1907, Trans. ent. Soc. London, **1906**, p. 446.

Specimen examined. 1♂, Bhutan, 22–IX–1996, S. TANIMOTO leg.
Distribution. E. Himalayas (including Bhutan), Myanmar.

Ophrygonius birmanicus GRAVELY

Ophrygonius birmanicus GRAVELY, 1914, Mem. Ind. Mus., **3**, p. 226.

Specimen examined. 1♀, E. Mera, 2,350 m in alt., Bhutan, 5~15–IX–1998.
Distribution. Bhutan, Myanmar, Indochina.

Ophrygonius convexifrons ZANG

Basilianus cantori convexifrons ZANG, 1904, Zool. Anz., **27**, p. 698.

Specimen examined. 1♀, Bhutan, 22–IX–1996, S. TANIMOTO leg.
Distribution. Bhutan, Assam, Myanmar, Vietnam.

Aceraius grandis (BURMEISTER)

Passalus grandis BURMEISTER, 1847, Handb. Ent., **5**, p. 463.

Specimens examined. 8♂♂, 8♀♀, E. Mera, 2,350 m in alt., Bhutan, 5~15–IX–1998.
Distribution. E. Himalayas (including Bhutan), Myanmar, Indochina, China, Taiwan, Malay Peninsula, Sumatra, Java, Borneo, Philippines.

Leptaulax bicolor (FABRICIUS)

Passalus bicolor FABRICIUS, 1801, Syst. Eleuth., **2**, p. 256.

Specimen examined. 1♂, E. Mera, 2,350 m in alt., Bhutan, 5~15–IX–1998.
Distribution. Sri Lanka, India, E. Himalayas (including Bhutan), Myanmar, Indochina, China, Malay Peninsula, Sumatra, Java, Borneo, Philippines, Sulawesi, Moluccas, New Guinea, Australia.

Leptaulax dentatus (FABRICIUS)

Passalus dentatus FABRICIUS, 1792, Ent. Syst., **1**(2), p. 241.

Specimen examined. 1♀, E. Mera, 2,350 m in alt., Bhutan, 5~15–IX–1998.

Distribution. India, E. Himalayas (including Bhutan), Myanmar, Indochina, China, Taiwan, Malay Peninsula, Sumatra, Java, Borneo, Philippines, Sulawesi, Moluccas, New Guinea, Australia.

In closing this report, we express our hearty thanks to Mr. S. TANIMOTO for giving us specimens.

要　約

近　雅博・田中正浩・荒谷邦雄：ブータンから採集されたクロツヤムシ，ならびに *Tiberioides austeni* GRAVELY の雄交尾器の記載．—— ブータンから採集されたクロツヤムシ7種を記録した．また，*Tiberioides austeni* GRAVELY の雄交尾器を図示して記載した．

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Elytra, *Tokyo*, **27** (2): 475–476, November 13, 1999

A New Record of *Cylindrocaulus davidi* BOUCHER et REYES-CASTILLO (Coleoptera, Passalidae) from Gansu, China[1)]

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Cylindrocaulus davidi was described by BOUCHER and REYES-CASTILLO (1996) from Wa Shan (6,000 ft.), Sichuan, China. Later, this species was recorded from the Daliang Shan Range (2,600 m in altitude), Sichuan, about 150 km south of Wa Shan (KON *et al.*, 1997).

Recently we had an opportunity to examine two specimens of a *Cylindrocaulus* species from Gansu, China, and identified them with *C. davidi*. Thus, we herewith record *C. davidi* from Gansu, China. This is the first record of the genus *Cylindrocaulus* from the locality other than Sichuan and Japan.

Specimens examined. 2 exs., Min Shan Range, 2,100 m, 70 km NW of Wudo, Gansu, China, 1–VI–1997.

Distribution. Gansu (new record) and Sichuan, China.

Notes. The Min Shan Range is located between 33° and 34°N and more than 500 km north of the Daliang Shan Range. Thus, *Cylindrocaulus davidi* BOUCHER et REYES-CASTILLO has a considerably wide latitudinal distributional range as compared with those of the other two known congeneric species: *C. bucerus* FAIRMAIRE from Baoxing, Sichuan, China and *C. patalis* (LEWIS) from Kyushu and Shikoku, Japan.

1) This study is supported in part by Grants-in-Aid from the Ministry of Education, Science, Sports and Culture, Japan (Nos. 10041166, 11833007, 11833014).

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Elytra, Tokyo, **27** (2): 476–477, November 13, 1999

Description of the Male Genitalia of *Ophrygonius sternibarbis* BOUCHER (Coleoptera, Passalidae), with New Records from Mt. Trus Madi, Sabah and Mt. Mulu, Sarawak[1)]

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Ophrygonius sternibarbis was described by BOUCHER (1995) based on a single female specimen collected from Mt. Kinabalu, Sabah, Borneo. Thereafter, no additional specimen has been known.

We obtained a male specimen of *O. sternibarbis* collected by Prof. T. MATSUMOTO from Mt. Trus Madi, Sabah. Further, we found additional specimens of this species from Mt. Mulu, Sarawak, preserved in the collection of Kyoto University. We herewith record *O. sternibarbis* from Mt. Trus Madi and Mt. Mulu, and describe the male genitalia of this species for the first time.

Before going further, we express our hearty thanks to Prof. T. MATSUMOTO and Dr. Maryati

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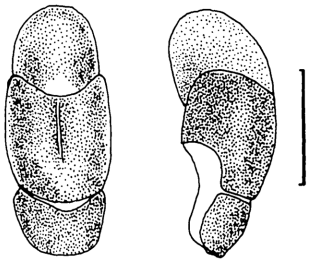
1) This study is supported in part by Grants-in-Aid from the Ministry of Education, Science, Sports and Culture, Japan (Nos. 08041136, 10041166, 11833007, 11833014).



Figs. 1–2. Male genitalia of *Ophrygonius sternibarbis* (scale: 1 mm); ventral view (1), and left lateral view (2).

MOHAMED for giving us the opportunity of the present research.

Ophrygonius sternibarbis BOUCHER

(Figs. 1 & 2)

Ophrygonius sternibarbis BOUCHER, 1995, Annls. Soc. ent. Fr., (N. S.), **31**, p. 51.

Description of male genitalia. Penis rounded, wholly sclerotized on dorsal side except in a small centro-proximal area close to anterior margin of parameres; parameres united on ventral side, a little longer than penis, twice as long as basal piece, with a fine median sulcus on antero-ventral portion; distal margin of basal piece obtuse V-shaped in ventral view, lateral margins divergent distally (Figs. 1–2).

Specimens examined. 1♂, Mt. Trus Madi, 1,500 m in alt., Sabah, 17–IX–1997, T. MATSUMOTO leg.; 2♂♂, 2♀♀, Mt. Mulu, 1,800 m in alt., Sarawak, 20–XII–1989, K. ARAYA leg.

Notes. BOUCHER (1996) noted that *Ophrygonius sternibarbis* is similar to *O. uedai* KON et JOHKI in the shape of mandible and abdominal sternites with hairs. The present study has shown that these two species are also similar in the male genitalia having relatively long parameres with a fine median sulcus.

Reference

BOUCHER, S., 1995. Quatre nouveaux *Ophrygonius* de nord Bornéo et de Péninsule Malaise (Coleoptera: Passalidae). *Annls. Soc. ent. Fr.*, (N. S.), **31**: 49–56.

Elytra, Tokyo, **27** (2): 478, November 13, 1999

A Record of the Brachyglutine Species, *Trissemus antilope* (RAFFRAY) (Coleoptera, Staphylinidae, Pselaphinae) from Kyushu, Japan

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Trissemus antilope (RAFFRAY) belonging to the tribe Brachyglutini of the supertribe Goniacerinae is a rare species known from Honshu, namely, Kyoto in the original description and Shibata City, Niigata Prefecture by NOMURA and KOIKE (1994), and from Shikoku without detailed locality by NAKANE (1963). An amateur coleopterologist, Mr. Kenshi OHTSUKA kindly offered me this species collected on the Amakusa Isls., Kyushu.

Trissemus antilope (RAFFRAY)

[Japanese name: Higebuto-enma-arizukamushi]

Specimens examined. 8♂♂, Ariake-chô, Matsushima Is., Amakusa Isls., Kumamoto Pref., 31–VII–1994, K. OHTSUKA leg.

Distribution. Japan (Honshu, Shikoku and Kyushu).

Remarks. NAKANE (1963) suggested that the habitat of this species lay on the underside of stones on the seashore or at the riverside. The specimens presented in this report were collected by a light trap located nearby the seashore according to personal communication with Mr. OHTSUKA. This indicates that the species inhabits a place near the seaside also in this case, and at least the male can fly to light.

References

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NOMURA, S., & H. KOIKE, 1994. Notes on the distribution of the pselaphid beetles in Niigata Prefecture (Coleoptera, Pselaphidae). *Spec. Bull. Essa ent. Soc.*, (2): 123–137. (In Japanese.)

Elytra, *Tokyo*, **27** (2): 479–484, November 13, 1999

An Additional New Species to the *Scaphidium* Fauna (Coleoptera, Staphylinidae, Scaphidiinae) of the Ryukyus, Japan[1)]

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Abstract A new species, *Scaphidium kumejimaense* sp. nov., is described from Kumejima Is., the Ryukyus, Japan, together with illustrations of important features and a key to the six species occurring in the Ryukyus.

The genus *Scaphidium* OLIVIER belongs to the tribe Scaphidiini of the subfamily Scaphidiinae in the family Staphylinidae (NEWTON & THAYER, 1992) and comprises 267 species from the world (LÖBL, 1997; HOSHINA & MORIMOTO, 1999). In the Ryukyus, five species of *Scaphidium* have so far been known to occur (HOSHINA & MORIMOTO, 1999). Recently, we found out a new species of *Scaphidium* in the junior author's collection, which had been taken on Kumejima Is., the Ryukyus. We are going to describe it and provide a revised key to the six species of the Ryukyus in the present paper. The new species is easily distinguished from other Japanese species of *Scaphidium* by its smaller, robuster, brown, and immaculate body.

The holotype described in the present paper is preserved in the collection of the Entomological Laboratory, Kyushu University.

Before going further, we wish to express our sincere gratitude to Prof. Junichi YUKAWA and Prof. Emer. Katsura MORIMOTO (Kyushu University) for reading our early draft.

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1) Contributions from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 5, No. 30).

A Key to the Species of the Genus *Scaphidium* in the Ryukyus

1. Elytra immaculate, concolorous, black or reddish brown to brown ..... 2.
— Elytra maculate, yellowish brown with black patches ..... 4.
2. Dorsum black, with a reddish brown transverse band along anterior margin of pronotum, which is prolonged posteriorly at sides and at the middle ..... *S. morimotoi* LÖBL.
— Dorsum reddish brown to brown; pronotum immaculate ..... 3.
3. Body 3.1–3.3 mm in length, about 1.8 times as long as wide; dorsum brown; antennae with 11th segment longer than wide (Fig. 2); median lobe of male genitalia triangular apically in ventral and dorsal views (Figs. 7–8); parameres crooked in ventral and dorsal views (Figs. 7–8) ..... *S. kumejimaense* HOSHINA et MARUYAMA, sp. nov.
— Body 4.5–4.7 mm in length, about 2.2 times as long as wide; dorsum reddish brown to brown; antennae with 11th segment almost as long as wide; median lobe of male genitalia feebly projected apicad in ventral and dorsal views; parameres slightly sinuate in ventral and dorsal views ..... *S. brunneum* HOSHINA et MORIMOTO.
4. Pronotum sharply narrowed anteriad; fore tibiae slightly and gradually thickened from base to apical 1/4 ..... *S. reitteri* LEWIS.
— Pronotum gradually narrowed anteriad; fore tibiae weakly but distinctly expanded internally at about apical 1/3 or 2/5 ..... 5.
5. Antennae slender, 7th segment about twice as long as wide, 11th segment 1.6 times as long as wide; dorsum with larger black patches, median black band on elytra wider, confluent with sutural stripe ..... *S. amamiense* HOSHINA et MORIMOTO.
— Antennae less slender, 7th segment about 1.5 times as long as wide, 11th segment 1.4 times as long as wide; dorsum with smaller black patches, black median patches distant from sutural stripe on elytra ..... *S. okinawaense* HOSHINA et MORIMOTO.

Scaphidium kumejimaense HOSHINA et MARUYAMA, sp. nov.

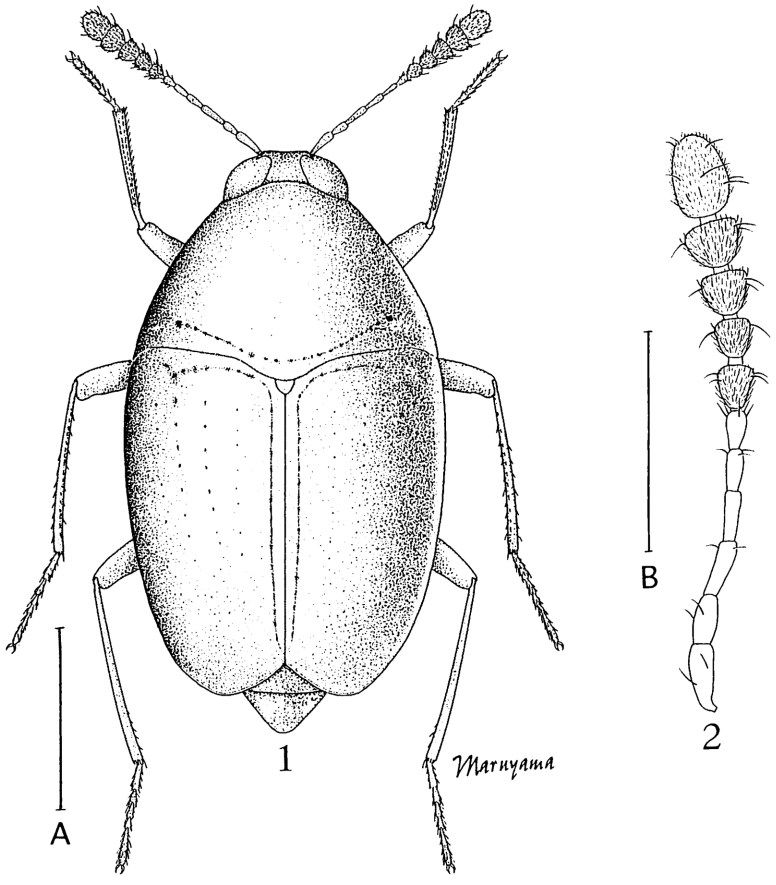
[Japanese name: Kumejima-deokinokomushi]

(Figs. 1–9)

Male and female. Coloration:— Dorsum concolorously brown; 1st–6th segments of antennae light brown to brown, 7th–11th segments black, but the apical half of 11th is yellowish brown; propygidium and pygidium light brown; legs light brown to brown with light brown tarsi; meso- and metasterna brown; venter light brown.

Body glabrous, robust in general, about 1.8 times as long as wide (Fig. 1).

Head almost impunctate; eyes round in dorsal view, about 0.50 times as long as cephalic length in lateral view, deeply curved inward near antennal pits in frontal view;



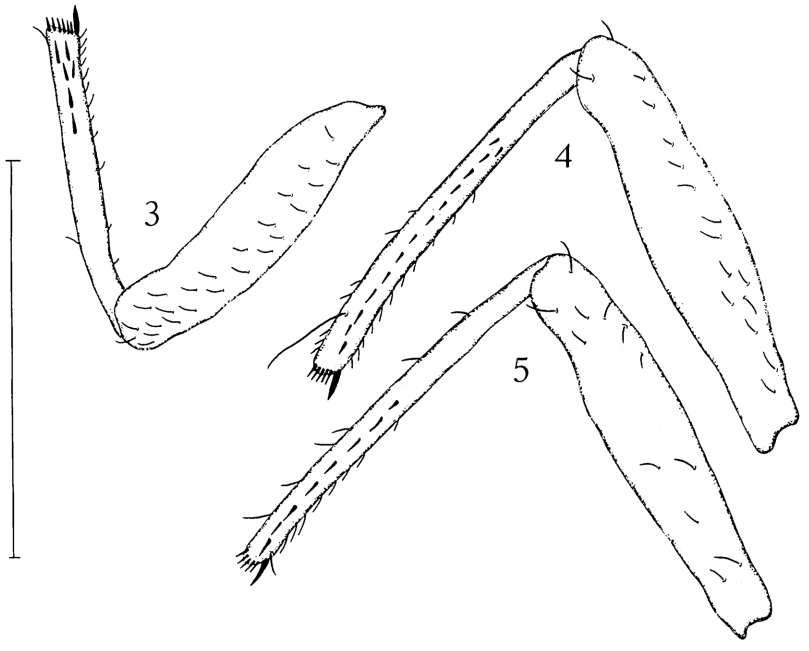
Figs. 1–2. *Scaphidium kumejimaense* HOSHINA et MARUYAMA, sp. nov.; 1, body, dorsal view; 2, antenna. Scale A: 1.0 mm for Fig. 1. Scale B: 0.5 mm for Fig. 2.

frons flat, about 0.23 times as wide as head at its narrowest part in frontal view. Antennae about 2.0 times as long as cephalic width; 1st–7th and 11th segments longer than wide; 8th segment almost as long as wide; 9th–10th segments wider than long; 7th segment about 1.2 times as long as and about 2.0 times as wide as 6th; 11th segment slender; 1st–6th segments sparsely and 7th–11th segments densely hairy (Fig. 2).

Pronotum smooth, about 1.7 times as wide as long, curved and narrowed apically at sides, widest at base, strongly bisinuate at posterior margin, feebly pointed posteriad at latero-basal angles; length and width of pronotum about 0.63 times as long as and about 0.93 times as wide as those of elytra, respectively (Fig. 1); ante-basal stria with about 25 minute or deep punctures, not interrupted at middle.

Scutellum smooth, about as long as wide.

Elytra widest at about basal 1/3 (Fig. 1), almost as wide as long, moderately rounded at sides; discal punctures of elytra sparse, and minutely or strongly impressed;



Figs. 3–5. *Scaphidium kumejimaense* HOSHINA et MARUYAMA, sp. nov.; right femur and tibia in male, ventral view; 3, fore, 4, middle, 5, hind. Scale: 1.0 mm.

each basal transverse stria with 5–8 minute or deep punctures; each adsutural stria with 13–17 punctures smaller than those of basal transverse stria.

Propygidium and pygidium almost impunctate and very sparsely hairy.

Undersurface smooth in general; venter very sparsely hairy.

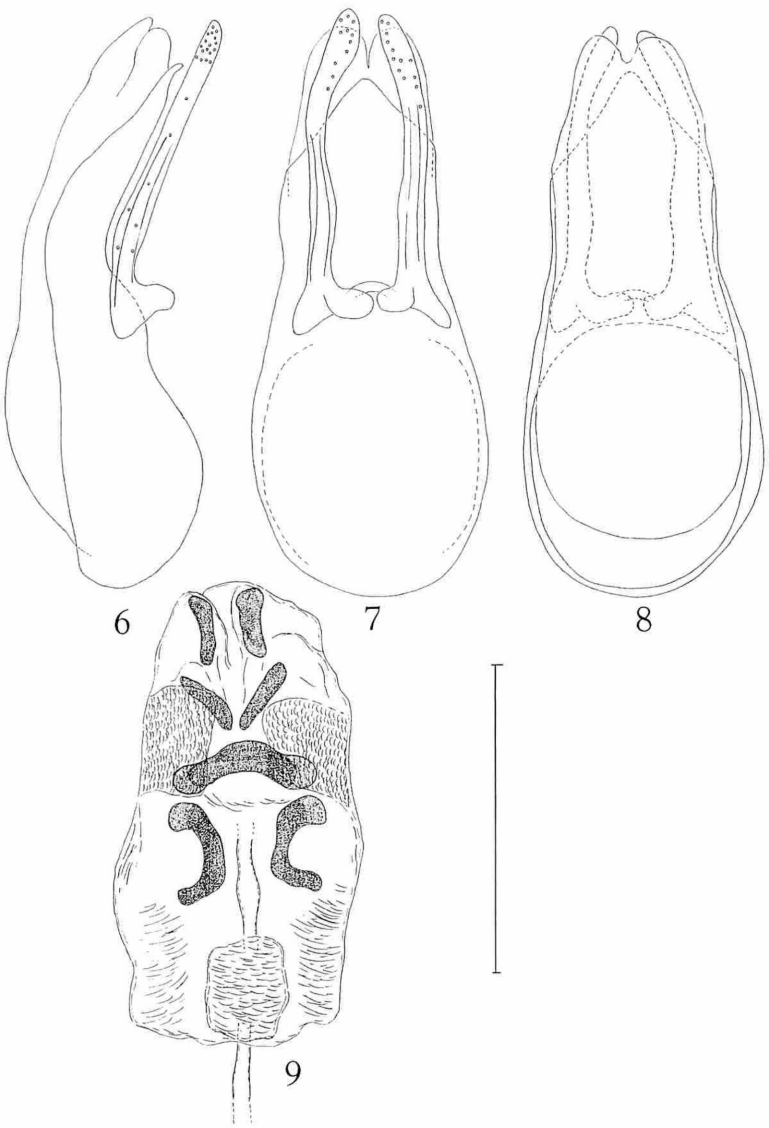
Fore femora slender (Fig. 3); middle femora thick, with anterior and posterior margin feebly sinuate (Fig. 4); hind femora slender, with posterior margin slightly expanded in male (Fig. 5), almost straight in female; fore tibiae weakly but distinctly expanded internally from about basal 1/4 toward apex (Fig. 3); middle tibiae almost straight (Fig. 4); hind tibiae almost straight, but feebly becoming thinner from basal 1/6 toward base (Fig. 5), and with a distinct longitudinal groove.

Male. Metasternum with dense and decumbent pubescence; male genitalia (Figs. 6–8) about 0.90 mm in length, 0.41 mm in width, oval in general; median lobe round basally, triangular apically in ventral and dorsal views, sharply pointed apically in lateral view; parameres longer than median lobe, crooked, round apically in ventral and dorsal views, almost straight, round apically in lateral view; inner sac simple, with 7 sclerites (Fig. 9).

Female. Metasternum glabrous.

Length. 3.1–3.3 mm (holotype: 3.1 mm).

Distribution. Japan: Ryukyus (Kumejima Is.).



Figs. 6–9. *Scaphidium kumejimaense* HOSHINA et MARUYAMA, sp. nov.; 6–8, male genitalia, lateral, ventral and dorsal views, respectively; 9, inner sac, dorsal view. Scale 0.5 mm for Figs. 6–8 and 0.125 mm for Fig. 9.

Type series. Holotype: ♂, taken in a forest along the Shirase River, Kumejima Is., Okinawa Pref., the Ryukyus, 14~16–III–1998, M. MARUYAMA leg. (Type No. 3097, Kyushu University). Paratype: 1 ♀, same data as holotype.

Remarks. This species is similar in appearance to *Scaphidium brunneum* HOSHINA et MORIMOTO, 1999, but the body is 3.1–3.3 mm in length, and about 1.8

times as long as wide (Fig. 1). In contrast, *S. brunneum* has the body 4.5–4.7 mm in length, and about 2.2 times as long as wide.

Etymology. The specific name is derived from the name of the type locality.

要　約

保科英人・丸山宗利：琉球産*Scaphidium*属（ハネカクシ科デオキノコムシ亜科デオキノコムシ属）の1新種．——*Scaphidium*属は，琉球から5種が知られていたが，著者の1人丸山が，沖縄県久米島から1新種を採集した．これを*Scaphidium kumejimaense* sp. nov.（和名：クメジマデオキノコムシ）として記載するとともに，琉球産6種の検索表を付けた．本種は，*Scaphidium brunneum*（チャイロデオキノコムシ）に似ているが，体サイズが小さく，相対的に幅が広いことで区別できる．

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Elytra, *Tokyo*, **27** (2): 485–498, November 13, 1999

Taxonomical Notes on Chinese Species of the Tyrine Genus *Tyrinasius* (Coleoptera, Staphylinidae, Pselaphinae)

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Abstract A tyrine genus of pselaphid beetle, *Tyrinasius* KURBATOV is recorded for the first time from China. Four new species, *T. sichuanus* and *uenoianus* from Sichuan Prov. and *T. yinae* and *sexpunctatus* from Yunnan Prov. are described.

Introduction

The genus *Tyrinasius* is defined by KURBATOV (1993) on the basis of two new species, *orcinus* from Uzubekistan and *saluki* from Kazakhstan. This genus is very distinct in its appearance as compared with the other members of the tribe Tyrini. I found this genus from Sichuan and Yunnan, Southwest China, and recognized four new species to be described below.

Genus *Tyrinasius* KURBATOV

Tyrinasius KURBATOV, 1993, Russ. ent. J., **2**: 51. Type species: *Tyrinasius orcinus* KURBATOV, by original designation.

Body broadened posteriorly, more or less flattened in elytra and abdomen, sparsely pubescent.

Head ovoid, frons narrowed and strongly convex, with a median fovea and a pair of distinct dorsal tentorial pits, postgenae broad, weakly rounded or flattened. Eyes reduced to 3 to 5 facets. Antenna short and slender. Labrum short, weakly broadened in anterior part, mandibles each broad, sharpened distally, with 3 to 5 denticles, maxilla short in basal part, maxillary palpi very large, each arcuate, 1st segment very short, 2nd large and elongate, swollen in apical part, 3rd narrowed basally, swollen distally, 4th fusiform to ovoid, with short palpal spine near apex, labium short, mentum quadrate or trapezoidal, labial palpus elongate, narrowed distally, 1st segment very short, cylindrical, 2nd the largest, with a long seta at external side of the apex, 3rd shorter than 2nd, very narrow, paraglossae short and narrow, each densely setose on anterior side.

Pronotum ovoid or subglobose, smooth on dorsal and lateral surface, without foveae nor sulci. Elytra strongly narrowed at base, each elytron with 1 to 2 basal

foveae. Legs short and slender, trochanters each elongate, narrowed basally, tarsi each with a pair of symmetrical tarsal claws.

Abdomen very large, rounded on lateral and posterior side in dorsal view, 4th to 7th tergites each transverse, smooth on dorsal surface, with a pair of paratergites, 8th tergite narrowed posteriorly, truncate at apex, 8th sternite emarginate at apex in male, arcuate in female, 9th sternite consisting of a median and a pair of lateral plates, lamellar in male, almost membranous in female. Male genitalia symmetrical, weakly sclerotized, parameres paired, more or less connected with each other at base, median lobe nearly ovoid to elongate, endophallus narrow and lamellar.

Remarks. The genus *Tyrinasius* is very distinct in the reduced eyes, the large and slender maxillary palpi, the narrowed pronotum and basal part of the elytra, and very large and more or less flattened abdomen.

Key to Chinese Species of the Genus *Tyrinasius*

1. Fifth abdominal tergite longer than 4th .....
(*T. orcinus* KURBATOV from Uzbekistan and *T. saluki* KURBATOV from Kazakhstan).
— Fifth abdominal tergite about as long as, or shorter than, 4th ..... 2.
2. Fifth abdominal tergite about as long as 4th; elytra more or less depressed ..... 3.
— Fifth abdominal tergite shorter than 4th; elytra convex ..... 4.
3. Fourth to 6th abdominal tergites each with a pair of semicircular setiferous patches at base ..... *T. sexpunctatus* sp. nov.
— Fourth to 5th abdominal tergites each with a pair of narrow and transverse setiferous patches at base, 6th with a pair of very narrow and indistinct setiferous patches ..... *T. yinae* sp. nov.
4. Fourth segment of maxillary palpus nearly symmetrical, fusiform and simply articulated with 3rd ..... *T. sichuanus* sp. nov.
— Fourth segment of maxillary palpus asymmetrical, obliquely articulated with 3rd ..
..... *T. uenoianus* sp. nov.

Tyrinasius sichuanus sp. nov.

(Figs. 2 A–B, 3 A, 5 D–E, 6 A–F)

Male. Length 2.13–2.20 mm. Width 0.95–1.05 mm. Body reddish brown, maxillary palpi and tarsi light brown, broadened posteriorly, weakly flattened on dorsal surface.

Head longer than wide, ovoid, clypeus short, arcuate on anterior margin, frons strongly convex, constricted just behind antennal bases, vertex roundly convex, with a pair of dorsal tentorial pits between eyes, genae broadened anteriorly in front of eyes, postgenae broad, weakly rounded. Eyes each reduced to 3 to 5 facets. Antennae slender, reaching base of elytra, 1st segment large, longer than wide, subcylindrical, 2nd 1.1 times as long as wide, cylindrical, 3rd to 8th subequal in width, successively short-

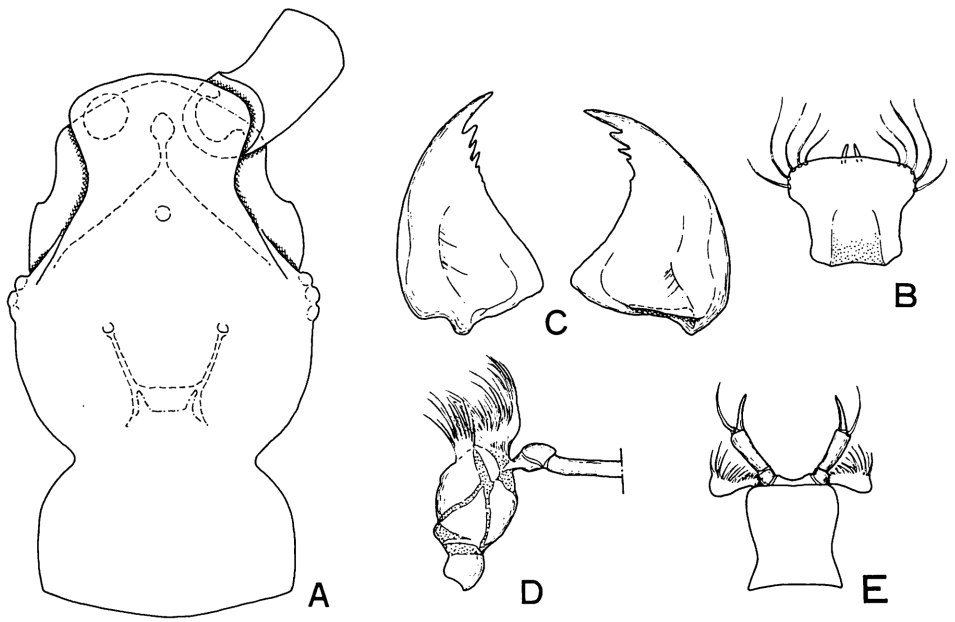


Fig. 1. Head and mouthparts of *Tyrinasius yinae* sp. nov. —— A, Cranium in dorsal view; B, labrum; C, mandibles; D, left maxilla (apical part of maxillary palpus excluded); E, labium.

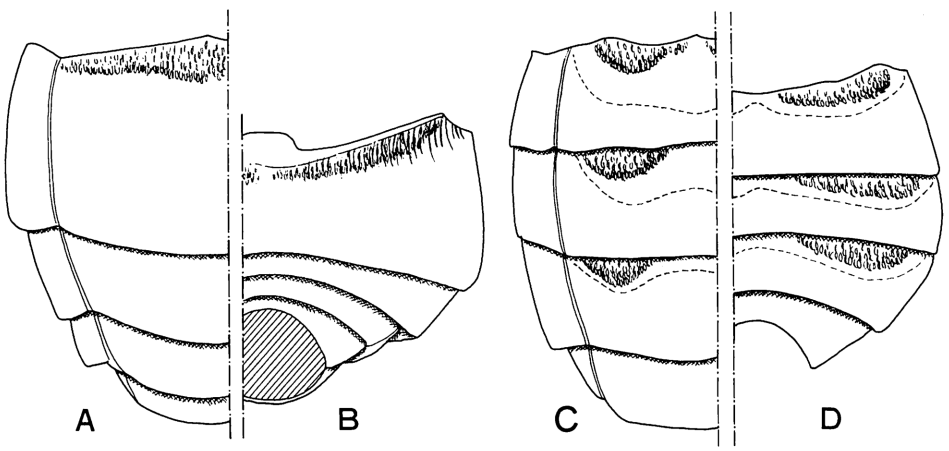


Fig. 2. Abdominal structure of *Tyrinasius*. —— A, *T. sichuanus* sp. nov., 4th to 7th abdominal segments in dorsal view; B, ditto, in ventral view; C, *T. sexpunctatus* sp. nov., 4th to 7th abdominal segments in dorsal view; D, ditto, in ventral view.

ened distad, 3rd to 5th each ovoid, 6th to 8th each subglobose, 9th 1.2 times as large as 8th, subglobose, 10th 1.2 times as wide as 9th, gently transverse, 11th the largest, as long as 9th+10th, slightly wider than 10th, ovoid, weakly pointed at apex, relative length (width) of each segment from base to apex:— 2.0 (1.0): 1.2 (0.8): 1.1 (0.7): 1.0 (0.7): 1.0 (0.7): 0.8 (0.7): 0.7 (0.7): 0.7 (0.7): 1.0 (1.1): 1.2 (1.5): 2.6 (1.8). Maxillary palpi as long as head, elongate and arcuate, 1st segment very short, 2nd elongate, strongly narrowed in basal half, strongly swollen in apical half, 3rd shorter and slightly narrower than 2nd, strongly narrowed in basal 1/4, with a minute seta at apex, 4th the largest, as long as 1st+2nd, slightly wider than 2nd, ovoid, strongly narrowed at base, with very short palpal spine at apical 1/10 on inner side, sparsely covered with weakly curled setae around palpal spine.

Pronotum as long as head, as long as wide, gently convex on dorsal side, rounded on lateral sides, smooth on dorsal and lateral surfaces, sparsely covered with pubescence. Elytra slightly longer than pronotum, transverse and trapezoidal, each elytron with 2 indistinct foveae and an adsutural sulcus from inner basal fovea to posterior end. Legs short and slender, trochanters elongate, each narrowed basally, femora weakly swollen mediad, tibiae slender, each weakly incurved in apical part, tarsi slightly thickened mediad.

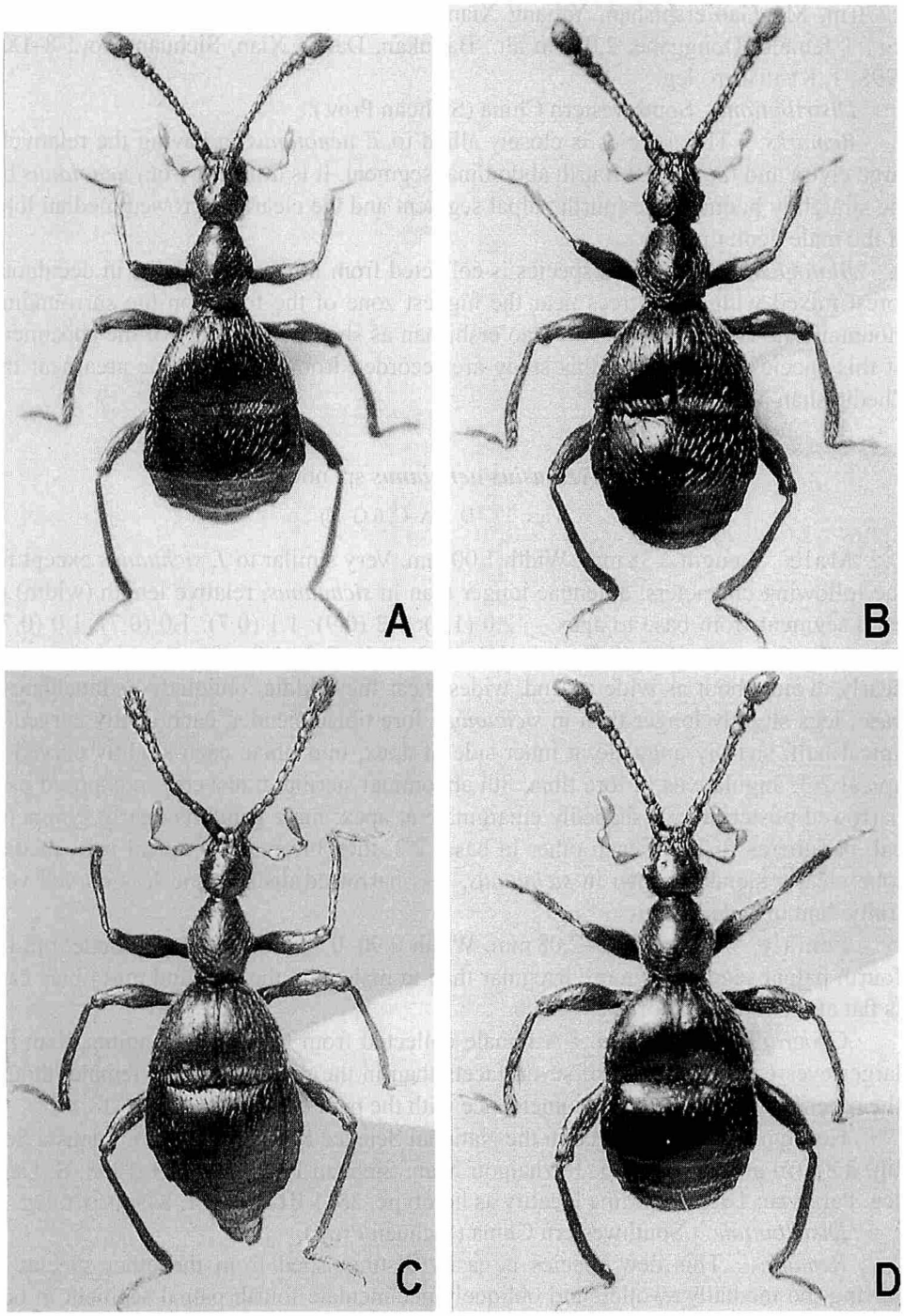
Abdomen larger than elytra, wider than long, rounded laterally and posteriorly, 4th abdominal segment the largest, transverse and nearly trapezoidal, slightly broadened posteriad, with a pair of large and posteriorly broadened paratergites, 5th about a half as long as 4th in dorsal view, transverse and narrowed posteriorly, 6th to 7th subequal in dorsal length, each about a half as long as 5th, transverse, 8th tergite trapezoidal in exposed part, narrowed posteriorly, truncate at apex, 8th sternite narrowed posteriorly, arcuately emarginate at apex, 9th sternite consisting of a median and a pair of lateral plates, lamellar, median plate transverse and ovoid in exposed part, connected with a lateral plate on one side at basal part, lateral plates nearly symmetrical, each quadrangular, weakly sclerotized in latero-apical part.

Male genitalia weakly sclerotized; parameres V-shaped in ventral view, each narrowed distally, median lobe elongate, thickened and ovoid in basal part, narrowed and curved ventrally in apical part, obtusely projected rightwards at apex, with a large and ovoid membranous part on dorsal side, endophallus long and slender, nearly straight.

Female. Length 2.10–2.13 mm. Width 0.98 mm. Very similar to male and almost indistinguishable in appearance; metasternum flattened at median part; 8th abdominal sternite transverse, straight on posterior margin; 9th sternite almost membranous.

Holotype male (preserved in the National Science Museum, Tokyo), Geda Liangzi, 3,500 m alt., Zheduoshan Mts., Daofu Xian, Sichuan Prov., 8–IX–1998, T. KISHIMOTO leg. Paratypes: 1 female, same data as holotype; 1 male, Tiemengou,

Fig. 3. Habitus of *Tyrinasius* spp. —— A, *T. sichuanus* sp. nov., male; B, ditto, female; C, *T. uenoianus* sp. nov., male; D, ditto, female.


A
B
C
D

3,770 m, Mt. Gao'ershishan, Yajiang Xian, Sichuan Prov., 30–IX–1996, S. NOMURA leg.; 1 female, Donggahe, 2,970 m alt., Baitukan, Danba Xian, Sichuan Prov., 8–IX–1998, T. KISHIMOTO leg.

Distribution. Southwestern China (Sichuan Prov.).

Remarks. This species is closely allied to *T. uenoianus* in having the relatively large elytra and the largest fourth abdominal segment. It is different from *uenoianus* by the straightly pedunculate fourth palpal segment and the clearly narrowed median lobe of the male genitalia.

Biological notes. This species is collected from litter accumulated in deciduous forest mixed with *Abies* trees near the highest zone of the forest on the surrounding mountains at Tiemengou on Mt. Gao'ershishan as shown in Fig. 6. All the specimens of this species examined in this study are recorded from the subalpine area near the Zheduoshan Mountains.

Tyrinasius uenoianus sp. nov.

(Figs. 3 C–D, 5 A–C, 6 G–K)

Male. Length 2.38 mm. Width 1.00 mm. Very similar to *T. sichuanus* except for the following characters: antennae longer than in *sichuanus*, relative length (width) of each segment from base to apex:— 2.0 (1.0): 1.2 (0.9): 1.1 (0.7): 1.0 (0.7): 1.0 (0.7): 0.8 (0.7): 0.7 (0.7): 0.6 (0.7): 1.1 (1.2): 1.2 (1.5): 3.0 (1.8); fourth palpal segment nearly ovoid, about as wide as 2nd, widest near the middle, obliquely pedunculate at base; legs slightly longer than in *sichuanus*, fore tibiae slender, each gently curved in apical half, sharply angulate at inner side of apex, mid tibiae each slightly curved in apical 2/3, angulate as in fore tibia; 8th abdominal sternite transverse in exposed part, narrowed posteriorly, V-shapedly emarginate at apex; male genitalia nearly symmetrical, parameres fused to each other in basal 2/3, then bifurcate in apical part, median lobe clearly slenderer than in *sichuanus*, less narrowed distally and less curved ventrally than in *sichuanus*.

Female. Length 2.05–2.08 mm. Width 0.90–0.93 mm. Similar to male, but the fourth palpal segment is more irregular than in male, and the fore and mid tibiae each is flat at the inner side of apex.

Geographical variation. A female collected from Nibashan, Yingjing Xian has larger eyes each composed of seven facets than in the paratopotypical female, though the other characters are all in coincidence with the paratopotype.

Holotype male (preserved in the National Science Museum, Tokyo), Yuanshi Senlin, 2,850 m alt., Jiuzhaigou, Jiuzhaigou Xian, Sichuan Prov., 30–VIII–1998, S. UÉNO leg. Paratype: 1 female, same locality as holotype, 28–VIII–1998, T. KISHIMOTO leg.

Distribution. Southwestern China (Sichuan Prov.).

Remarks. This new species is easily distinguished from the other species by having the medially swollen and obliquely pedunculate fourth palpal segment in both sexes.

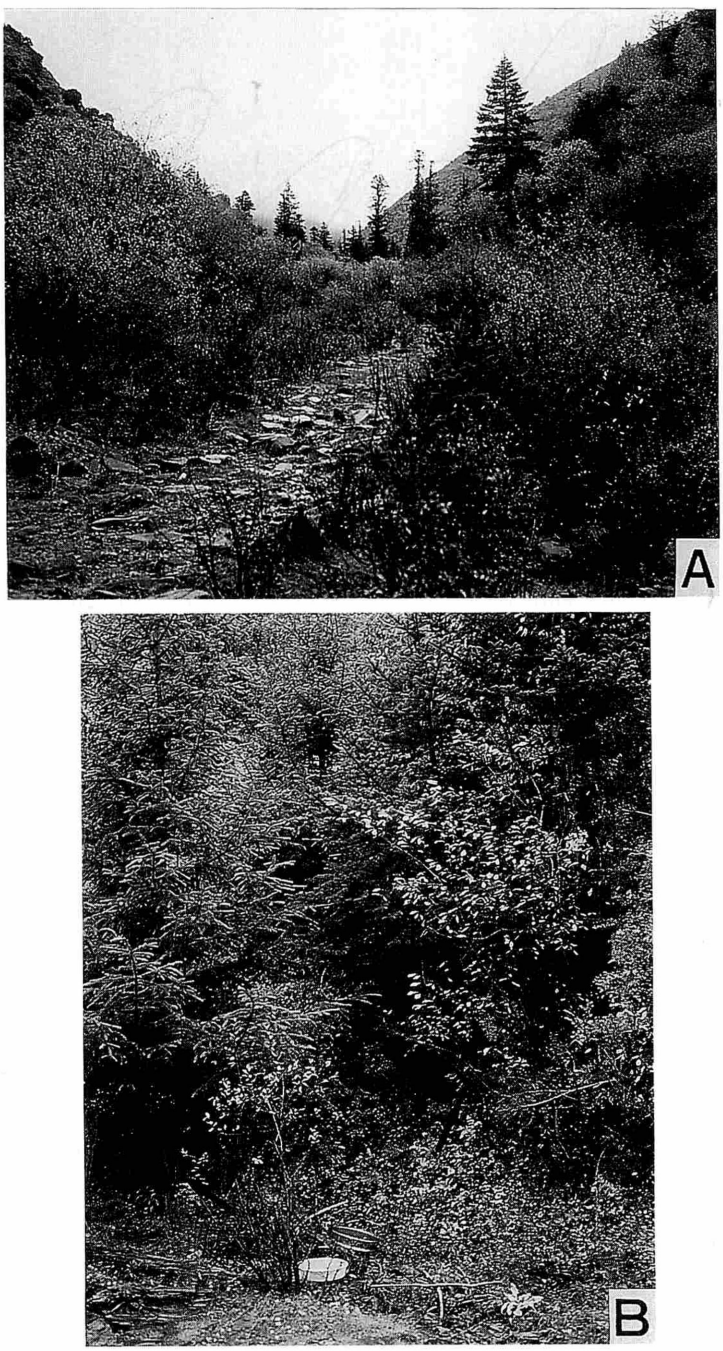


Fig. 4. Habitat of *Tyrinasius sichuanus* sp. nov., Tiemengou, near Mt. Gao'ershishan. —— A, Forest landscape; B, collected points (arrows).

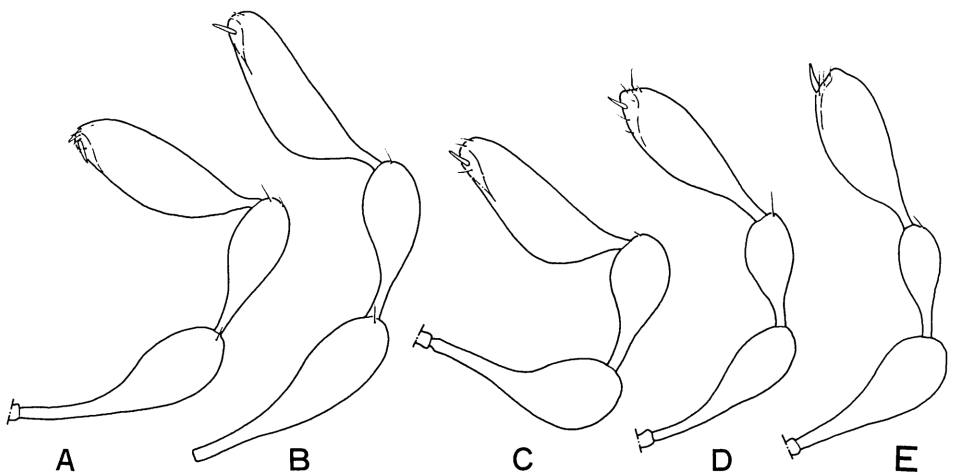


Fig. 5. Maxillary palpi. —— A, *Tyrinasius uenoianus* sp. nov., male from Jiuzhaigou; B, ditto, female; C, ditto, female from Mt. Nibashan; D, *T. sichuanus* sp. nov., male; E, ditto, female.

Etymology. The name of this species is given after the collector of the holotype, Dr. Shun-Ichi UÉNO.

Tyrinasius yinae sp. nov.

(Figs. 1 A–D, 7 A–C, 8 A–B, 9 A–F)

Male. Length 1.78–1.93 mm. Width 0.83–0.88 mm. Body reddish to dark brown, maxillary palpi and tarsi light brown, broadened posteriorly, gently flattened dorsad in elytra and abdomen.

Head longer than wide, clypeus very short, arcuate on anterior margin, invisible in dorsal view, frons narrowed and strongly convex at bases of antennae, with a short median longitudinal sulcus from the point between antennal bases to frontal fovea, vertex weakly convex, smooth on dorsal surface, with a pair of dorsal tentorial pits behind eyes, postgenae broad and rounded. Eyes small, each ovoid and consisting of 4 to 5 facets. Antennae short and thick, reaching elytral base, 1st segment thick, subcylindrical, 2nd slightly smaller than 1st, longer than wide, cylindrical, 3rd to 8th subequal in width, successively shortened toward apex, 9th larger than 8th, transverse, 10th thick and large, transverse, 11th the largest, as long as 8th+9th+10th, nearly ovoid and flattened at base, relative length (width) of each segment from base to apex:— 1.8 (1.0): 1.0 (0.8): 0.7 (0.7): 0.6 (0.7): 0.6 (0.7): 0.5 (0.7): 0.5 (0.7): 0.5 (0.7): 0.9 (0.8): 1.0 (1.2): 2.6 (1.5). Maxillary palpi large and arcuate, 1st segment very short, 2nd large and elongate, narrowed in basal half, thickened in apical half, 3rd slightly narrower than 2nd, ovoid and pedunculate at base, 4th the widest, slightly shorter than 2nd, ovoid and pedunculate at base, with short palpal spine just inside apex, sparsely covered with curled setae around palpal spine.

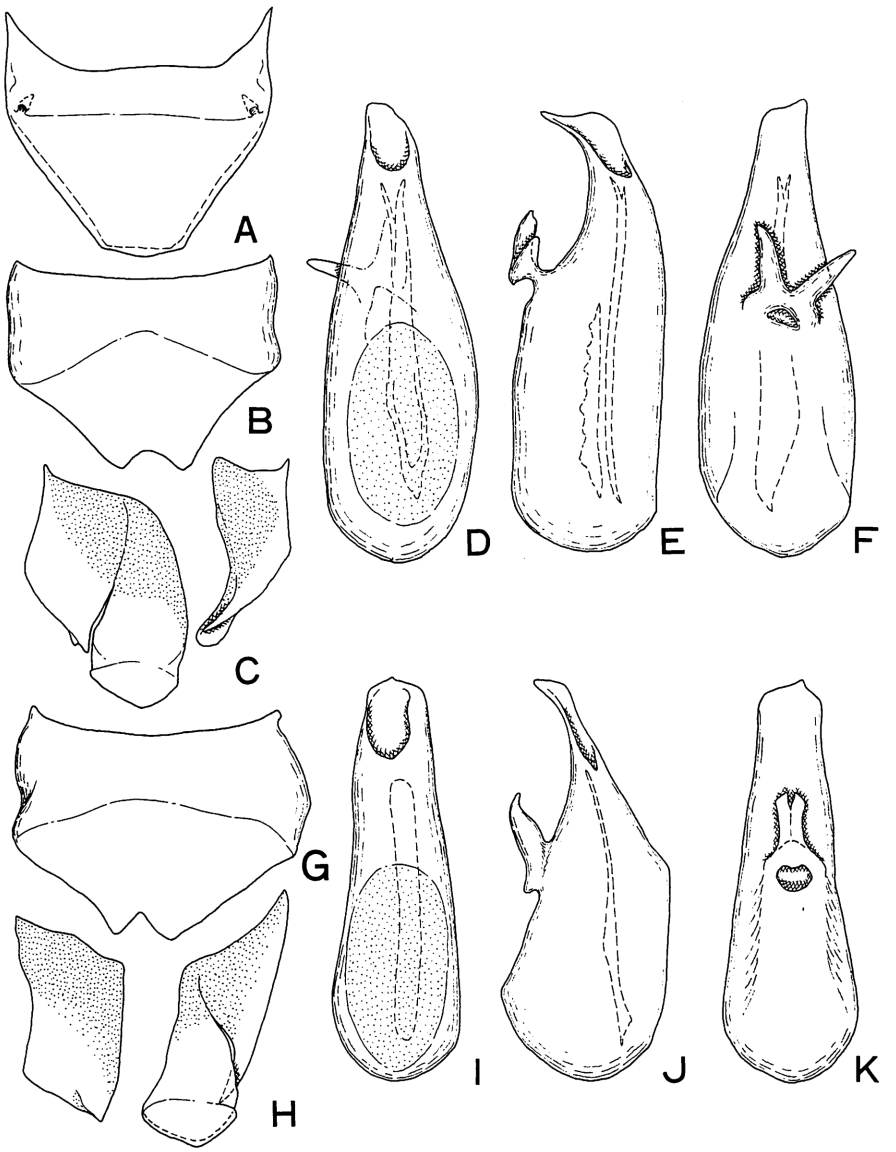


Fig. 6. Eighth to 9th abdominal segments and male genitalia of *Tyrinasius sichuanus* sp. nov. (A–F) and *T. uenoianus* sp. nov. (G–K). —— A, Eighth abdominal tergite; B, G, 8th sternite; C, H, 9th sternite; D, I, aedeagus in dorsal view; E, J, ditto, in lateral view; F, K, ditto, in ventral view.

Pronotum about as long as head, as long as wide, rounded at lateral sides, smooth and sparsely pubescent on dorsal and lateral surfaces. Elytra very short, about as long as pronotum, transverse and trapezoidal, with convex humeri, each elytron with a large fovea at base, broadly depressed around basal foveae, convex along suture. Legs short and slender, tibiae each slender, slightly curved, covered with dense hairs on inner side in apical part. Metasternum strongly convex at center, then depressed between metacoxae.

Abdomen very large, about twice as long as elytra, 4th to 6th segments subequal in dorsal length, 5th the widest, each of 4th to 6th tergites transverse and slightly convex, with a narrow and transverse basal groove, a pair of narrow and transverse setiferous patches at base and a pair of broad paratergites, setiferous patches very narrow and indistinct in 6th, each of 4th to 6th sternites with a pair of short and transverse basal grooves, 7th tergite slightly shorter than 6th, narrowed posteriorly, 8th tergite nearly triangular in exposed part, truncate at apex, with a pair of deep foveae at both lateral ends, 8th sternite transverse in exposed part, arcuately emarginate at apex, 9th sternite membranous in basal part, median plate ovoid in exposed part, lateral plates each triangular.

Male genitalia weakly sclerotized and very thick, parameres small, connecting to each other at base, each narrowed and sharpened toward apex, median lobe ovoid and bulbous, weakly narrowed and curved ventrally toward apex, with very narrow basal foramen at apical 3/7, broad apical orifice and very large and indistinct membranous part on dorsal side, endophallus broad and elongate, with a pair of short spiniform sclerites in apical part.

Female. Length 1.83–1.98 mm. Width 0.85–0.90 mm. Very similar to male, but metasternum weakly convex at center, and the 8th abdominal sternite without emargination on posterior margin.

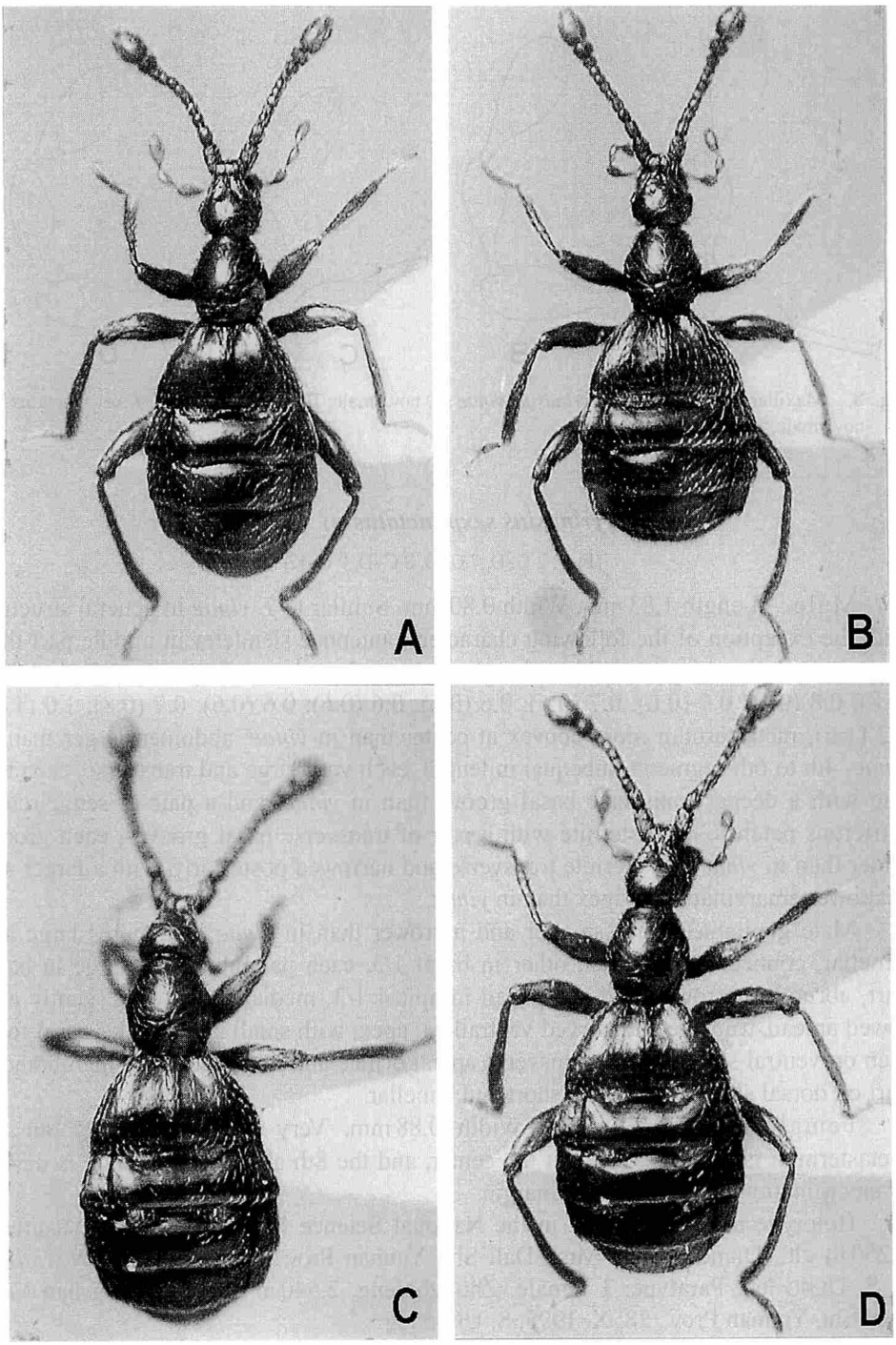
Holotype male (preserved in the National Science Museum, Tokyo), Mt. Jizushan, 2,650 m alt., Binchuan Xian, Yunnan Prov., 25–X–1995, Y. WATANABE and N. XIAO leg. Paratypes: 12 males, 9 females, same data as holotype; 2 females, same as holotype but S. UÉNO leg.

Distribution. Southwestern China (Yunnan Prov.).

Remarks. This species is similar to *T. sexpunctatus* in having very short and small elytra and the large abdomen with subequal fourth to sixth segments in length. It is distinguished from *sexpunctatus* by the sixth abdominal tergite with a pair of very narrow and indistinct setiferous patches at the base.

Etymology. This new species is dedicated to Dr. Wen-ying YIN of the Shanghai Institute of Entomology, Academia Sinica for her kind help for our project in Yunnan.

Fig. 7. Habitus of *Tyrinasius* spp. —— A, *T. yinae* sp. nov., male; B, ditto, female; C, *T. sexpunctatus* sp. nov., male; D, ditto, female.


A
B
C
D

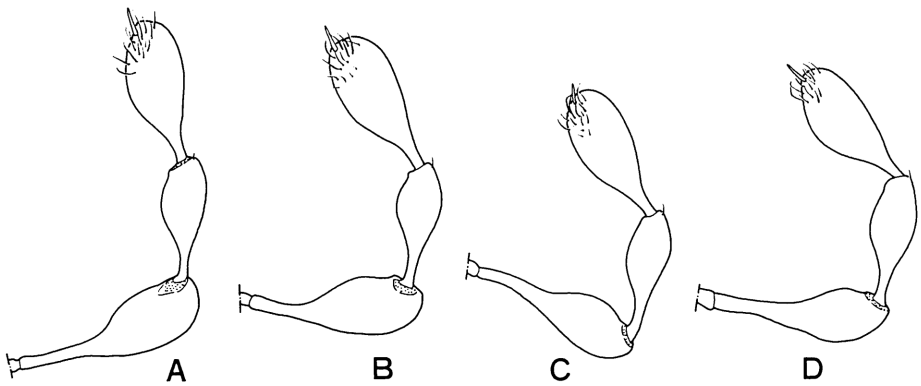


Fig. 8. Maxillary palpi. —— A, *Tyrinasius yinae* sp. nov., male; B, ditto, female; C, *T. sexpunctatus* sp. nov., male; D, ditto, female.

Tyrinasius sexpunctatus sp. nov.

(Figs. 2 C–D, 7 C–D, 8 C–D, 9 G–K)

Male. Length 1.83 mm. Width 0.80 mm. Similar to *T. yinae* in general structure with the exception of the following characters: antennae slenderer in middle part than in *yinae*, relative length (width) of each segment from base to apex:— 2.0 (1.0): 1.0 (0.8): 0.8 (0.6): 0.7 (0.6): 0.7 (0.6): 0.6 (0.6): 0.6 (0.6): 0.6 (0.6): 0.7 (0.8): 1.0 (1.1): 2.2 (1.6); metasternum more convex at center than in *yinae*; abdomen larger than in *yinae*, 4th to 6th segments subequal in length, each very large and transverse, each tergite with a deeper transverse basal groove than in *yinae*, and a pair of semicircular setiferous patches, each sternite with a pair of transverse basal grooves, each groove wider than in *yinae*, 8th sternite transverse and narrowed posteriorly, with a larger and shallower emargination at apex than in *yinae*.

Male genitalia clearly smaller and narrower than in *yinae*; parameres large and lamellar, connected with each other in basal 1/3, each paramere very large in basal part, abruptly narrowed and sharpened in apical 1/3, median lobe ovoid, gently narrowed apicad, truncate and curved ventrally at apex, with small and circular basal foramen on ventral side, narrow, transverse apical orifice and large indistinct membranous part on dorsal side, endophallus short and lamellar.

Female. Length 2.00 mm. Width 0.88 mm. Very similar to male, but the metasternum is weakly convex at the center, and the 8th abdominal sternite is devoid of emargination on the posterior margin.

Holotype male (preserved in the National Science Museum, Tokyo), Yuzufeng, 3,250 m alt., Diancangshan Mts., Dali Shi, Yunnan Prov., 6–IX–1993, Y. WATANABE & S. UÉNO leg. Paratype: 1 female, Zhonghefeng, 2,540 m alt., Diancangshan Mts., Dali Shi, Yunnan Prov., 28–X–1995, S. UÉNO leg.

Distribution. Southwestern China (Yunnan Prov.).

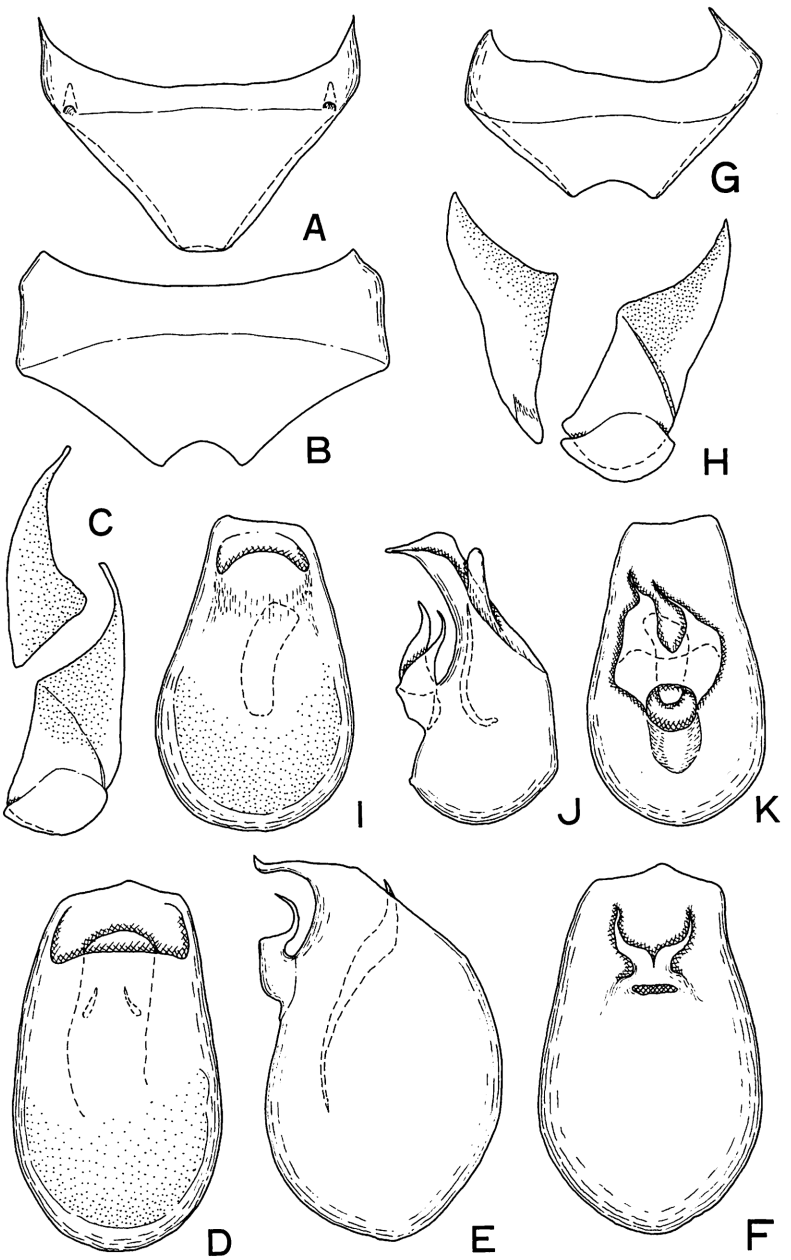


Fig. 9. Eighth to 9th abdominal segments and male genitalia of *Tyrinasius yinae* sp. nov. (A–F) and *T. sexpunctatus* sp. nov. (G–K). —— A, Eighth abdominal tergite; B, G, 8th sternite; C, H, 9th sternite; D, I, male genitalia in dorsal view; E, J, ditto, in lateral view; F, K, ditto, in ventral view.

Remarks. This new species is distinct in having the fourth to sixth abdominal tergites each with a pair of semicircular setiferous patches at the base, which look like six pale yellow spots.

Acknowledgement

I wish to express my sincere thanks to Dr. Wen-ying YIN of the Shanghai Institute of Entomology, Academia Sinica for her kind assistance and encouragement in the course of my field work. My cordial thanks are due to Dr. Shun-Ichi UÉNO for his continuous guidance and help in various ways. I am also indebted to Dr. Yasuaki WATANABE and Dr. Toshio KISHIMOTO for their kind offer of the invaluable materials.

This study is supported in part by the Grant-in-aid No. 07041131 for Field Research of the Monbusho International Scientific Research Program, Japan.

要　　約

野村周平：中国産*Tyrinasius*属（コウチュウ目 ハネカクシ科 アリヅカムシ亜科）に関する分類学的ノート．—— 従来，中央アジアのウズベキスタンおよびカザフスタンから各1種が知られるのみであったTyrini族の*Tyrinasius*属を初めて中国より記録した．四川省から*T. sichuanus*および*uenoianus*，雲南省から*T. yinae*および*sexpunctatus*の計4新種を新たに記載した．

本研究は文部省科学研究費（国際学術研究）課題番号07041131の助成を受けている．

Reference

KURBATOV, S. A., 1993. Le nouveau genre de Pselaphidae (Coleoptera) de l'Asie Centrale. *Russ. ent. J.*, **2**: 51–52.

Elytra, Tokyo, **27** (2): 499–501, November 13, 1999

Further Note on the Clavigerine Species *Triartiger reductus* NOMURA (Coleoptera, Staphylinidae, Pselaphinae)

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Abstract The male characters of the clavigerine species, *Triartiger reductus* NOMURA described from the Tsushima Isls., western Japan are noted.

Triartiger reductus NOMURA was described on the basis of a female collected on Mt. Mitake, the Tsushima Isls., Nagasaki Pref., and the male character has not been known. Recently, Mr. Hideto HOSHINA of Kyushu University kindly gave me a male and a female of this species collected from nearly the same locality as the holotype. The male character of this species is redescribed below.

Triartiger reductus NOMURA

[Japanese name: Tsushima-mifushi-higebuto-arizukamushi]

(Figs. 1–3)

Triartiger reductus NOMURA, 1997, Elytra, Tokyo, **25**: 435–444.

Male (Fig. 1 A). Length 1.90 mm. Width 0.69 mm. Very similar to female (Fig. 1 B), but antennae (Fig. 2 A) slightly longer than in female (Fig. 2 B), 3rd segment gently slenderer in propotion than in female; elytra about as long as abdomen in dorsal view, slightly longer than in female; mid legs short and robust (Fig. 2 C), trochanters elongate, gently thickened distad, femora short and thick, with a large and sharp spine on posterior side, tibiae elongate, each slightly thickened distad, with a small denticle at apical 1/4 on inner side.

Male genitalia (Fig. 3) weakly sclerotized; median lobe bulbous and slightly broadened apicad in basal part, broad, flattened and narrowed distally in apical lobe, basal foramen opening at ventral side of well constricted and projected basal nodule, endophallus short and indistinct in shape.

Specimens examined. 1 male, 1 female, Mt. Mitake, Tsushima Isls., Nagasaki Pref., 16~17–X–1999, H. HOSHINA leg.

Distribution. Japan (Tsushima Isls.).

Remarks. The male genitalia of this species are very similar to those of *T. urceus* KUBOTA in having the bulbous and gently constricted basal part, and the large

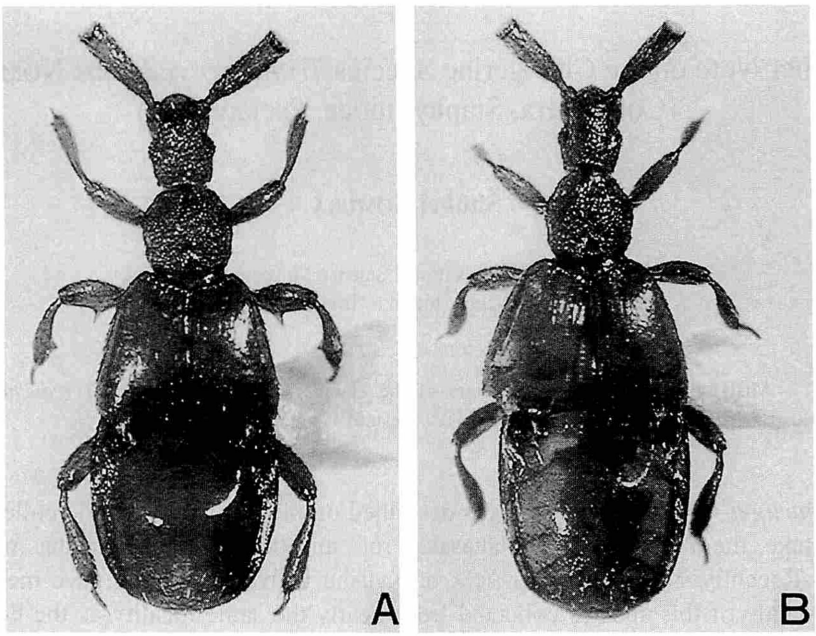

Fig. 1. *Triartiger reductus* NOMURA; A, habitus, male; B, ditto, female (holotype).

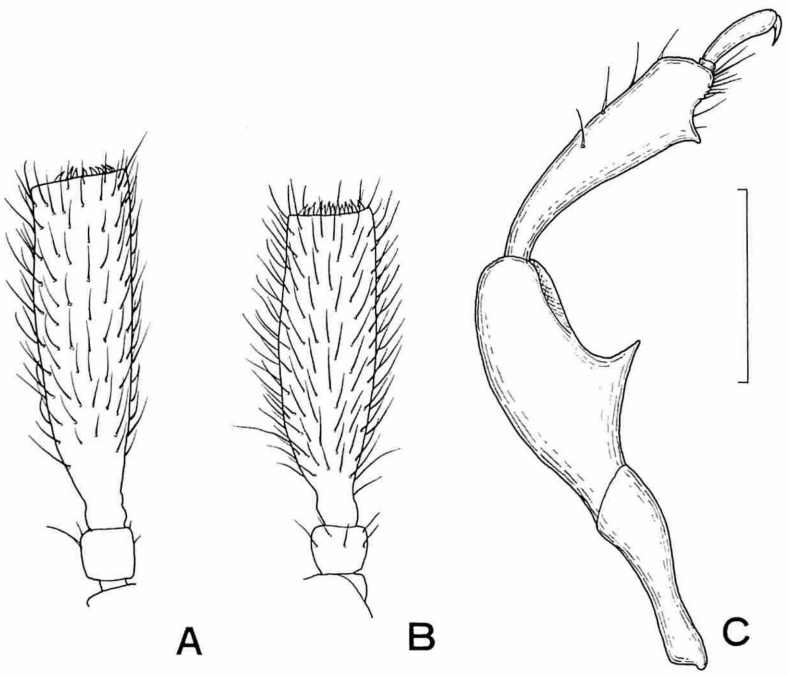

Fig. 2. *Triartiger reductus* NOMURA; A, right antenna, male; B, ditto, female; C, male left mid leg in ventral view. Scale: 0.2 mm.

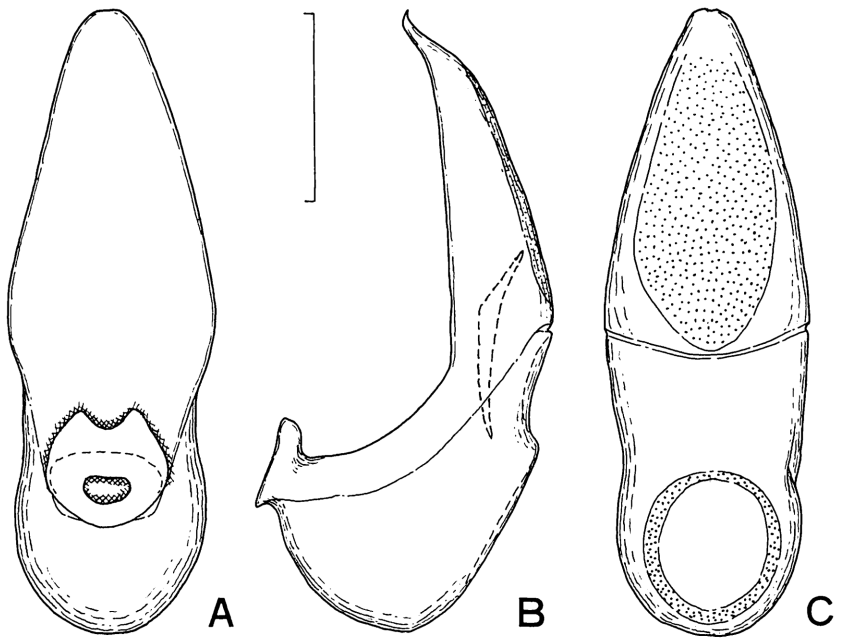

Fig. 3. Male genitalia of *Triartiger reductus* NOMURA; A, ventral view; B, lateral view; C, dorsal view. Scale: 0.1 mm.

and apically narrowed apical lobe. The male character in mid legs of this species is also in accordance with that of *T. urceus*. However, each male antenna is longer and slenderer than in female in this species, whereas each male antenna is shorter and thicker than in female in *T. urceus*.

要　　約

野村周平：対馬産ツシマミフシヒゲブトアリヅカムシに関する追記．—— 長崎県対馬御嶽から1頭の雌によって記載された，*Triartiger reductus* NOMURA ツシマミフシヒゲブトアリヅカムシの雄の形質を，九州大学の保科英人氏より恵与された御嶽産1雄に基づいて記録した．本種は雄交尾器の特徴ならびに中脚腿節および脛節に生じる棘状突起の形状において，台湾から知られる *T. urceus* KUBOTA ミフシヒゲブトアリヅカムシによく似ているが，雄の触角が雌のそれに比べてわずかに長く，第3節がより細長い点でミフシとは異なっている．

Reference

NOMURA, S., 1997. A revision of the clavigerine genus *Triartiger* KUBOTA (Coleoptera, Staphylinidae, Pselaphinae) from Taiwan and Japan. *Elytra, Tokyo*, **25**: 435–444.

Elytra, Tokyo, **27** (2): 502, November 13, 1999

Notes on the Distribution of *Trissemus implicitus* (RAFFRAY) (Coleoptera, Staphylinidae, Pselaphinae)

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Trissemus implicitus (RAFFRAY) described from Taiwan is recorded for the first time from Japan by NAKANE (1963) with the locality, Takarajima Is., Tokara Isls., Kagoshima Prefecture. Later, NOMURA and NAGAI (1995) reported it from Miyazaki Prefecture, Kyushu. In the present report, I am going to record this species for the first time from Shikoku and Okinawa-hontô Is. of the Ryukyus.

I wish to express my sincere thanks to Dr. Masahiro SAKAI for his kind offer of the invaluable specimens.

Trissemus implicitus (RAFFRAY)

[Japanese name: Taiwan-higebuto-enma-arizukamushi]

Specimens examined. 5♂♂, 23♀♀, Tsuda, Tokushima Pref., 11–IX–1965, M. SAKAI leg.; 13♂♂, 15♀♀, same locality and collector, but 18–IX–1965; 1♂, Mt. Imakiradake, Takarajima Is., Tokara Isls., Kagoshima Pref., 21–III–1992, S. NOMURA leg.; 1♂, Yona, Kunigami-son, Okinawa-hontô Is., 11–X–1988, S. NOMURA leg.

Distribution. Taiwan, Vietnam, Japan (Shikoku, Kyushu, Tokara Isls. and Okinawa-hontô Is.).

Remarks. The present record from Tokushima is not only the first one from Shikoku, but also the northernmost and easternmost record of the distribution of this species.

Literature Cited

NAKANE, T., 1963. Pselaphidae. *In* NAKANE, T., *et al.* (eds.), *Iconographia Insectorum Japonicorum Colore naturali edita*, **2**: 101–102. (In Japanese, with Latin book title.)

NOMURA, S., & A. NAGAI, 1995. Pselaphidae from Miyazaki Prefecture. *Tatehamodoki*, (31): 19–27. (In Japanese.)

Elytra, *Tokyo*, **27** (2): 503–517, November 13, 1999

A Revision of the Japanese Species of the Genus *Tetrabothrus* (Coleoptera, Staphylinidae, Aleocharinae)

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Abstract The aleocharine staphylinid beetles of the genus *Tetrabothrus* BERNHAUER from Japan are revised. A new species is described and illustrated under the name of *T. validus* MARUYAMA et KISHIMOTO, sp. nov. The chaetotaxy and male terminalia of *T. japonicus* and *T. septentrionalis* are firstly described. A key is given to the Japanese species of the genus.

NAKANE (1991) recorded for the first time the genus *Tetrabothrus* from Japan, and described a new species, *T. japonicus* on the basis of specimens obtained in Kyushu. After that, KISHIMOTO (1997) described *T. septentrionalis* on the basis of female specimens taken in Hokkaido. Recently, we had an opportunity to examine some additional specimens of *T. septentrionalis*, including males, taken from some localities in Honshu and Shikoku. We also found a new species from Honshu through the courtesy of Mr. Hiroshi WATARI (Yokohama) and Susumu YOSHIDA (Machida, Tokyo).

In this paper, we are going to revise the three Japanese species of the genus *Tetrabothrus* BERNHAUER. They are: *T. japonicus* NAKANE, *T. septentrionalis* KISHIMOTO, and *T. validus* MARUYAMA et KISHIMOTO, sp. nov. General descriptions and illustrations will be given of the male genitalia of each species, and of the chaetotaxy and terminalia of *T. japonicus* and *T. septentrionalis*.

Terminology for chaetotaxial system largely follows SAWADA (1972). The technical procedures adopted are generally as in NAOMI and MARUYAMA (1997). The material was observed by using binocular stereoscopic microscope (Olympus SZ40; up to ×160) and light-microscope (Olympus BH2; up to ×1000).

Key to the Japanese Species of the Genus *Tetrabothrus*

1 (2) Eyes extremely large, their diameter much larger than postocular parts. Body broad and somewhat depressed above. ..... *T. japonicus* Nakane

2 (1) Eyes moderate in size, their diameter not larger than postocular parts. Body slender.

3 (4) Body large, 5.5–6.6 mm in length. Longitudinal diameter of an eye nearly as long as postocular part. Third to 7th tergites without pubescence. ..... *T. validus* sp. nov.

4 (3) Body small, 4.5–5.4 mm in length. Longitudinal diameter of an eye nearly 2/3 as large as postocular part. Third to 7th tergites with large pubescence at each apex. ..... *T. septentrionalis* KISHIMOTO

Genus *Tetrabothrus* BERNHAUER

Tetrabothrus BERNHAUER, 1915, Tidjschr. Ent., **58**: 240 [type species: *Tetrabothrus clavatus* BERNHAUER, fixed by subsequent designation (BLACKWELDER, 1952, p. 382)]. —— CAMERON, 1939, Fn. Brit. Ind., Coleopt. Staphyl. IV, p. 457, description. —— KISHIMOTO, 1997, Elytra, Tokyo, **25**: 445–450, description.

This genus is distinguished from all the other genera of the tribe Lomechusini by the following combination of morphological features:

Head with distinct neck, mouth parts produced anteriad to form a beak. Antennae short, strongly clavate. Mentum subtrapezoidal; anterior margin broadly emarginate. Prementum with 3 real pores. Ligula bilobed. Elytra more or less transverse. Tarsal formula 4–5–5. Third to 6th abdominal tergites excavated at each base. Tenth tergite with a row of setae at base.

CAMERON (1939) surmised that the genus is myrmecophilous. However, there has been neither report of its association with ants nor collecting data taken from ants' nest. Our opinion is that *Tetrabothrus* is probably not a myrmecophilous genus.

Tetrabothrus japonicus NAKANE

[Japanese name: Kombou-higebuto-hanekakushi]

(Figs. 1–14)

Tetrabothrus japonicus NAKANE, 1991, Kita-kyûshû no Konchû, Kokura, **38**: 111, description; type locality: Inao-dake, Kagoshima Pref., Kyushu. —— KISHIMOTO, 1995, Elytra, Tokyo, **23**: 94, record from Honshu; 1997, Elytra, Tokyo, **25**: 448, records from the Ryukyu Isls.

Body length: 4.6–6.0 mm (from front margin of head to anal end); 2.0–2.5 mm (from front margin of head to apices of elytra).

Body (Fig. 1) broad, somewhat depressed above, shining. Color brownish red; legs yellowish.

Male. Head transverse and very weakly convex above (width/length=1.39),

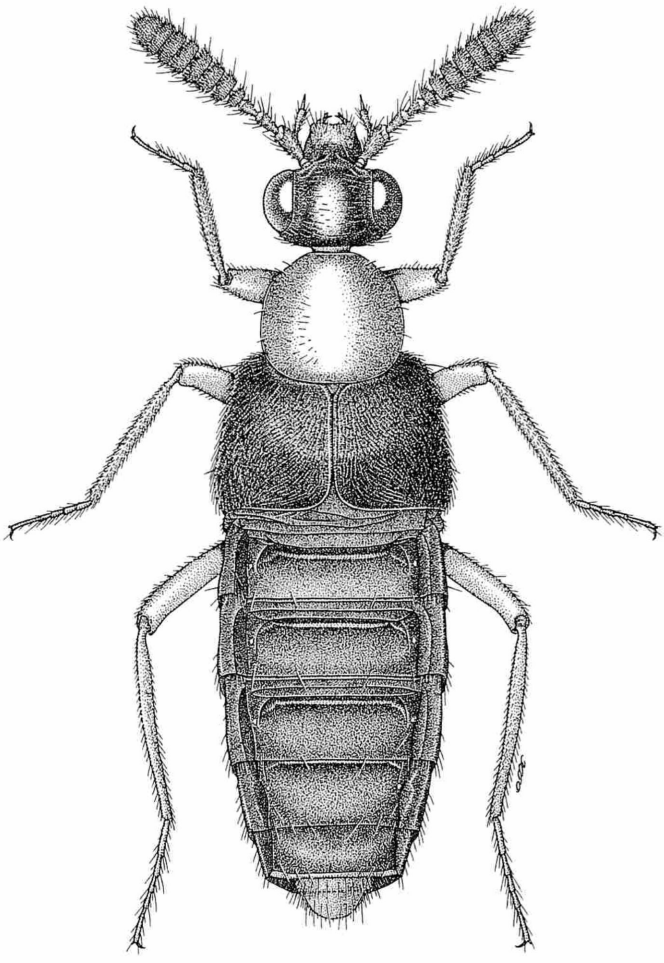
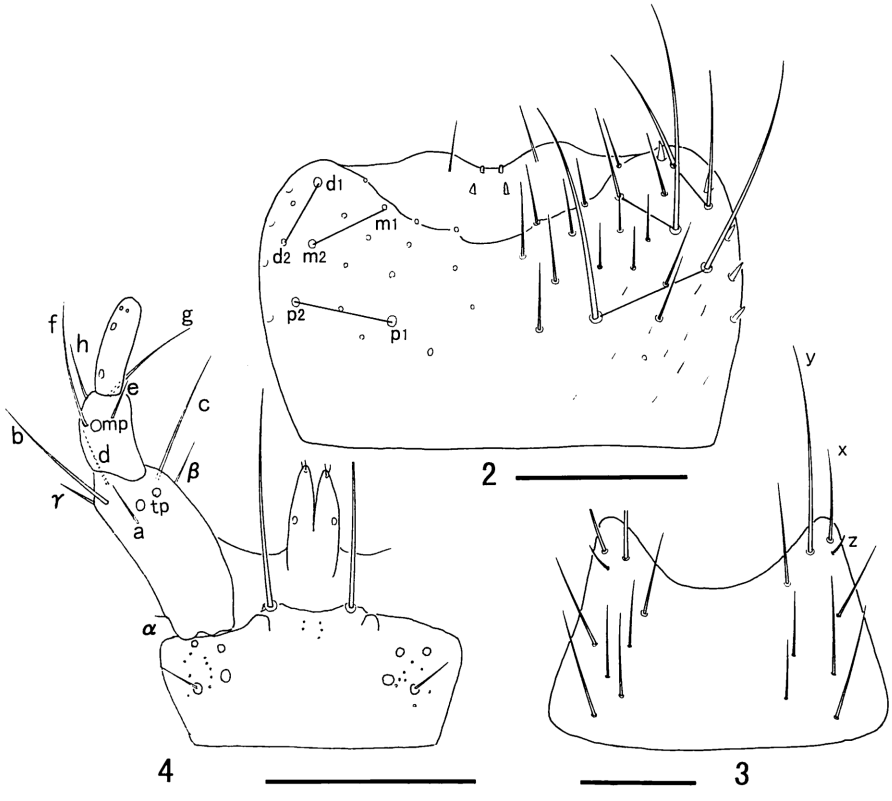


Fig. 1. Habitus of *Tetrabothrus japonicus* NAKANE.

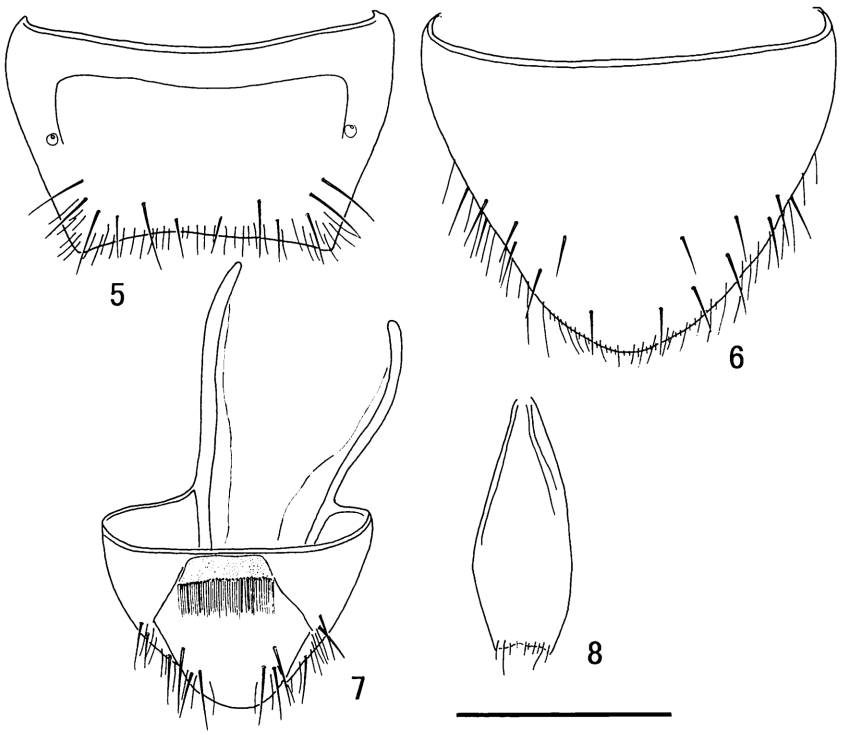
strongly narrowed posteriad to constricted neck; surface sparingly covered with long recumbent pubescence, central part glabrous; eyes extremely large and prominent, longitudinal diameter of an eye nearly twice as long as postocular part. Antennae much clavate; 1st segment stout and apically dilated, nearly twice as long as broad; 2nd segment shorter than the 1st; 3rd segment shorter than the 2nd, longer than broad; 4th–10th segments apparently broader than long; 11th segment conical, broader than long; relative length (width) of each segment from base to apex:— 2.3 (1.0): 1.3 (0.8): 1.1 (0.8): 0.4 (1.1): 0.6 (1.5): 0.7 (1.6): 0.7 (1.7): 0.6 (1.7): 0.55 (1.7): 0.4 (1.6): 1.1 (1.3). Labrum (Fig. 2) transverse, moderately emarginate at apex; anterior median part submembranous; surface sparsely covered with very minute pubescence; rows *d1–d2* and *m1–m2* almost the same in length; seta *m1* thin and inconspicuous as compared with



Figs. 2–4. *Tetrabothrus japonicus* NAKANE; 2, labrum; 3, mentum; 4; prementum and labium. Scale: 0.1 mm.

other principal setae, and poorly differentiated from secondary setae; *p1* and *p2* blackish and conspicuous. Mentum (Fig. 3) trapezoidal; anterior margin deeply and widely emarginate; seta *x* on the anterior margin, long, nearly a half as long as *y*; 1 *z* present, somewhat reduced. Prementum (Fig. 4) with 3 real pores and 1 setal pore, and with some minute pseudopores on median anterior margin and among the real pores. Ligula (Fig. 4) bilobed, with 2 fine spinulae at each apex. Labial palpus (Fig. 4) well segmented; 1st segment very long; 2nd segment shorter and narrower than the 1st, 1/3 as long as the 1st; 3rd segment as long as the 2nd but narrower; setula α much reduced; δ absent; β and γ well developed; setae *a* very short, located near *tp*; *b* as long as *c*, and located apically; *d* and *e* reduced; *f* located near *mp*; *g* as long as *f*, and located apically.

Pronotum circular and convex, narrowly and distinctly bordered, except for slightly emarginate anterior median margin, slightly broader than long (width/length= 1.10), and slightly broader than head (pronotum/head=1.10), widest at middle; surface similarly pubescent to head, and with 6 pairs of black suberect bristles. Scutellum tri-



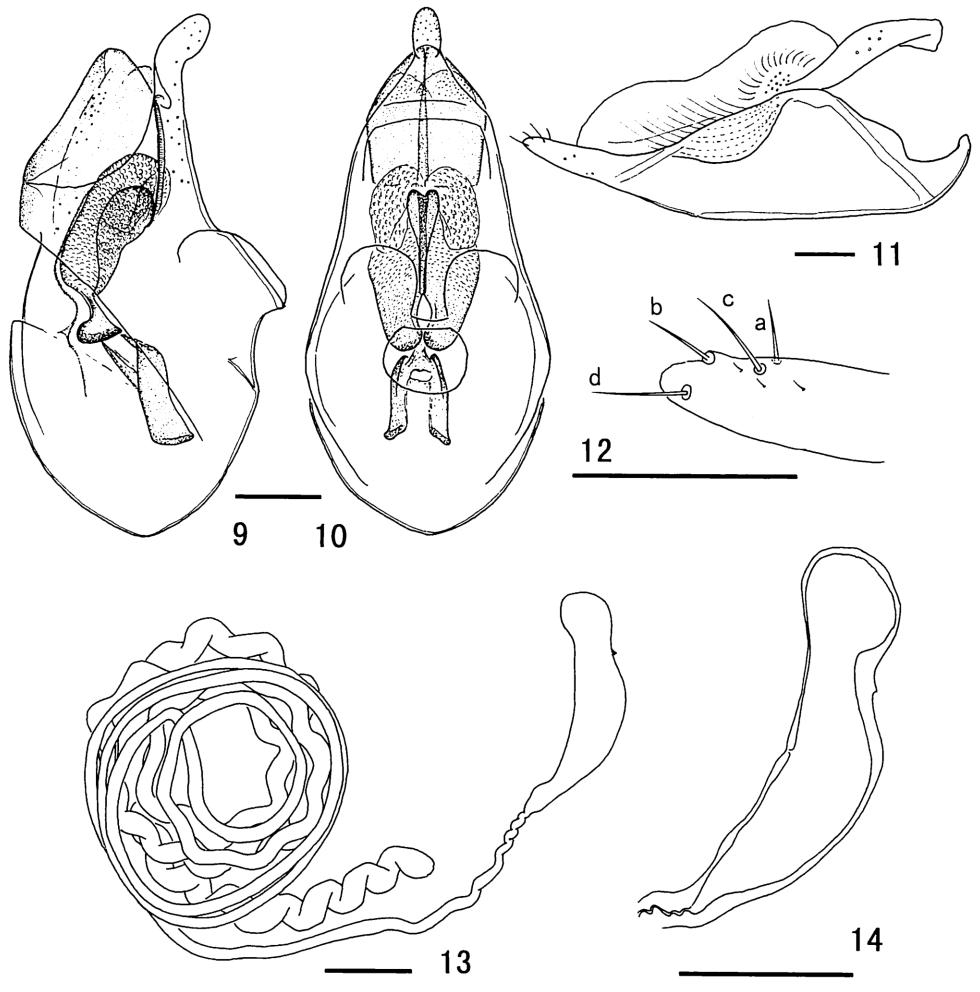
Figs. 5–8. *Tetrabothrus japonicus* NAKANE; 5, 8th tergite; 6, 8th sternite; 7, 9th and 10th tergite; 8, 9th sternite. Scale: 0.5 mm.

angular; surface smooth, and with 3 pairs of long pubescence. Elytra transverse, narrowed anteriad, broader than long (width/length=1.55), and much broader than pronotum (elytra/pronotum=1.75); posterior margin of elytra nearly truncate, though forming a slight re-entrant angle at suture; surface densely covered with long recumbent pubescence, which forms many bundles of 2–4 pubescence, and with 2 pairs of black suberect bristles. Legs long; relative length of each segment from base to apex: foretarsus:— 0.6: 0.7: 0.7: 1.8; midtarsus:— 1.0: 0.8: 0.7: 0.6: 1.7; hindtarsus:— 1.5: 1.1: 1.1: 0.9: 2.1.

Abdomen foliaceous; 5th–8th segments much narrowed posteriad; surface of all tergites completely glabrous, except for black bristles; 3rd–6th tergites deeply and broadly excavated at each base; 8th tergite (Fig. 5) truncated apically, transverse, with 6 long black bristles and with long pubescence; 8th sternite (Fig. 6) with 8 or 9 long black bristles, with long pubescence, and with minute apical pubescence; 9th and 10th tergites (Fig. 7) with 3 black bristles, respectively; 10th tergite with a row of long and thick setae at base; 9th sternite as shown in Fig. 8.

Macrochaetotaxy of 3rd–10th tergites:— 2: 2: 2: 3: 3: 6: 3: 3.

Median lobe (Figs. 9–10), viewed ventrally, ovate at base, gradually narrowed



Figs. 9–14. *Tetrabothrus japonicus* NAKANE; 9, median lobe of male genitalia, lateral aspect; 10, ditto, ventral aspect; 11, paramere of male genitalia; 12, ditto, apical lobe of paramerite; 13, spermatheca; 14, ditto, apical part. Scale: 0.1 mm.

apicad, with a narrowly protruded apex. In lateral view, ventro-median part abruptly produced; apical part almost straight and abruptly curved ventrad at the tip. Paramere (Fig. 11):— base of velum with some pores; apical lobe of paramerite as shown in Fig. 12; setae *b*–*d* on outer side; *a* as long as *b*; *c* as long as *d*, longer than *a* or *b*.

Female. Spermatheca (Figs. 13–14) complicatedly coiled many times; apical part gourd-shaped, weakly constricted.

Specimens examined [additional records]. [Honshu]: 1 ex., Kaminaka, Anamizu-machi, Ishikawa Pref., 12–VI–1963, S. TAKABA leg.; 1 ex., Torami, Ichinomiya-machi, Chiba Pref, 14–VIII–1991, K. KUBO leg.; 1 ex., Mt. Kiyosumi, Chiba Pref., 8–IX–

1986, H. YAMAZAKI leg.; 1 ex., same locality, 8–VII–1990, H. YAMAZAKI leg.; 1 ex., Mt. Tomisan, Chiba Pref., 14–VIII–1968, H. YAMAZAKI leg.; 1 ex., same locality, 8–VIII–1970, H. YAMAZAKI leg.; 1 ex., Higashiyama Rindô, Kimitsu-shi, Chiba Pref., 11–VII–1991, H. YAMAZAKI leg.; 1 ex., same locality, 1–IX–1991, H. YAMAZAKI leg.; 1 ex., Mt. Iwawaki, Osaka Pref., 13–VIII–1966, Y. HAYASHI leg. [Shikoku]: 1 ex., Higashino, Matsuyama, Ehime Pref., 17–V–1952, T. EDASHIGE leg. [Kyushu]: 1 ex., Yabe-mura, Fukuoka Pref., 6–V–1928, T. ESAKI leg.; 1 ex., Akamatsu Valley, Shimabara Pen., Nagasaki Pref., 25–VII–1979, S. IMASAKA leg.; 1 ex., Toi Cape, Miyazaki Pref., 19–VII–1963, M. YASUI leg.; 1 ex., Iriki, Kagoshima Pref., 20–VII–1981, M. ÔHARA leg. [Yaku Is.]: 2 exs., Miyanoura, 17–VII–1938, H. NOMURA leg. [Ryukyu Isls.]: 2 exs., Hatsuno, Amami-Ôshima Is., Kagoshima Pref., 4–IV–1965, K. UEDA leg.; 1 ex., Mt. Yuwan-dake, Amami-Ôshima Is., Kagoshima Pref., 7–VIII–1998, T. UEBI leg.; 2 exs., Gaji Rindô, Mt. Terubuki, Okinawa Is., Okinawa Pref., 21–X–1987, M. SAKAI leg.; 1 ex., Mt. Nishime-dake, Kunigami-son, Okinawa Is., Okinawa Pref., 19–X–1987, M. SAKAI leg.; 1 ex., Mt. Omoto, Ishigaki Is., Okinawa Pref., 31–III–1994, K. TOYODA leg.; 1 ex., Yonehara, Ishigaki Is., Okinawa Pref., 11–VI–1983, S. IMASAKA leg.; 3 exs., Arakawa Fall, Ishigaki Is., Okinawa Pref., 26–III–1998, H. YOSHITOMI leg.; 1 ex., Itona, Ishigaki Is., Okinawa Pref., 29–XI–1998, T. SHIMADA leg.; 1 ex., Ôsato, Ishigaki Is., Okinawa Pref., 1–VI–1999, H. MIZUSHIMA leg.; 1 ex., Urubuchi, Iriomote Is., Okinawa Pref., 17–X–1981, S. YOSHIMATSU leg.; 2 exs., Hoshidate, Iriomote Is., Okinawa Pref., 31–VIII–1989, K. YAMAZAKI leg.; 2 exs., Iriomote Is., Okinawa Pref. (no other data); 1 ex., Yonaguni Is., Okinawa Pref., 18–VII–1962, Y. HAMA leg.

Distribution. Japan (Honshu, Shikoku, Kyushu, Yaku Is., Ryukyu Isls. [new to Shikoku and Yaku Is.]).

Remarks. This species is easily distinguished from all the other Japanese species of the genus by the large eyes which occupy nearly a half of head in area.

Biological notes. Most specimens examined were taken by light traps. This species seems nocturnal, because of having large eyes and showing positive phototaxis. Life cycle is unknown.

Tetrabothrus septentrionalis KISHIMOTO

[Japanese name: Kita-kombou-higebuto-hanekakushi]

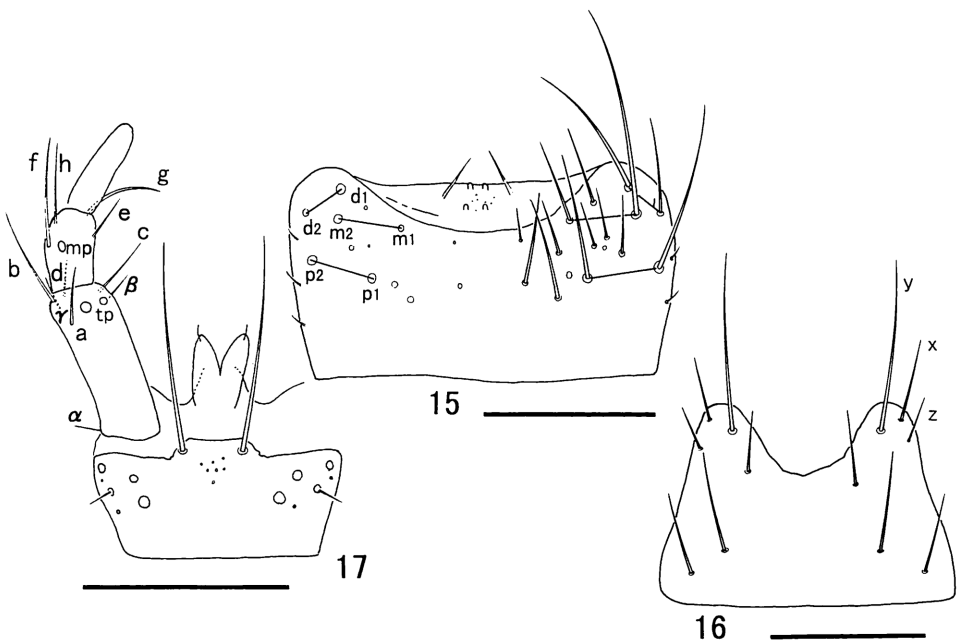
(Figs. 15–27)

Tetrabothrus septentrionalis KISHIMOTO, 1997, Elytra, Tokyo, **25**: 446, description of female; type locality: Oketo-ko, Oketo-chô, Abashiri, Hokkaido.

General description was given in KISHIMOTO (1997). Modified body length, chaetotaxy, and male and female terminalia of the species are described as follows:

Body length: 4.5–5.4 mm (from front margin of head to anal end); 1.9–2.4 mm (from front margin of head to apices of elytra).

Male. Labrum (Fig. 15) transverse, moderately emarginate at apex; anterior

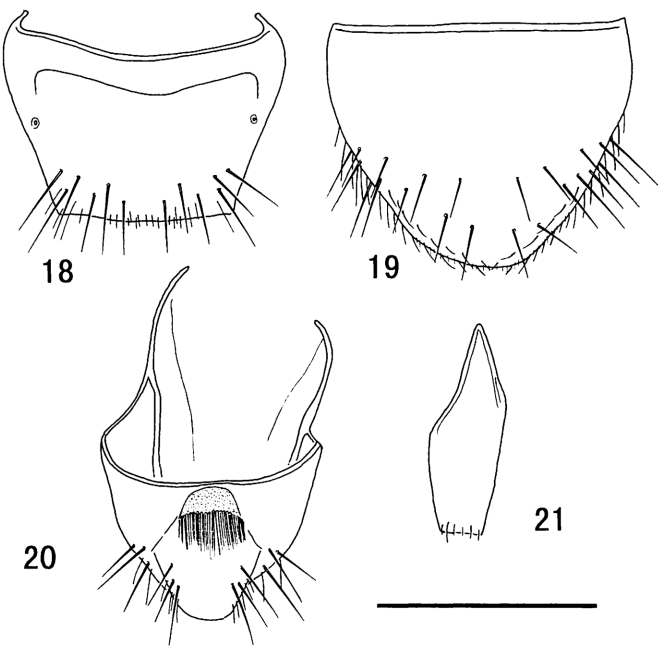


Figs. 15–17. *Tetrabothrus septentrionalis* KISHIMOTO; 15, labrum; 16, mentum; 17, prementum and labium. Scale: 0.1 mm.

median part submembranous; row *d1–d2* short, *m1–m2* and *p1–p2* almost the same in length; seta *m1* thin and inconspicuous as compared with other principal setae, and poorly differentiated from secondary setae; *p1* and *p2* blackish and conspicuous. Mentum (Fig. 16) trapezoidal; anterior margin deeply and widely emarginate; seta *x* on the anterior margin, very long, 2/3 as long as *y*; 1 *z* present, well developed. Prementum (Fig. 17) with 3 real pores and 1 setal pore, and with a small number of minute pseudopores on median anterior margin and among the real pores. Ligula (Fig. 17) bilobed, with 1 fine spinula at each apex. Labial palpus (Fig. 17) well segmented; 1st segment very long; 2nd segment shorter and narrower than the 1st, 2/5 as long as the 1st; 3rd segment as long as the 2nd but narrower; setula α developed; δ absent; β and γ well developed; setae *a* short; *b* as long as *c*, and located apically; *d* and *e* reduced; *f* located near *mp*; *g* as long as *f*, and located apically.

Eighth tergite (Fig. 18) truncated apically, with 6 long black bristles, and with long pubescence; 8th sternite (Fig. 19) with 11 or 12 long black bristles, with long pubescence, which forms 2 rows along median posterior margin, and with minute apical pubescence; 9th and 10th tergites (Fig. 20) with 3 black bristles, respectively; 10th tergite (Fig. 21) with a row of long and thick setae at base; 9th sternite as shown in Fig. 21.

Macrochaetotaxy of 3rd–10th tergites:— 3: 3: 3: 3: 3: 6: 3: 3.

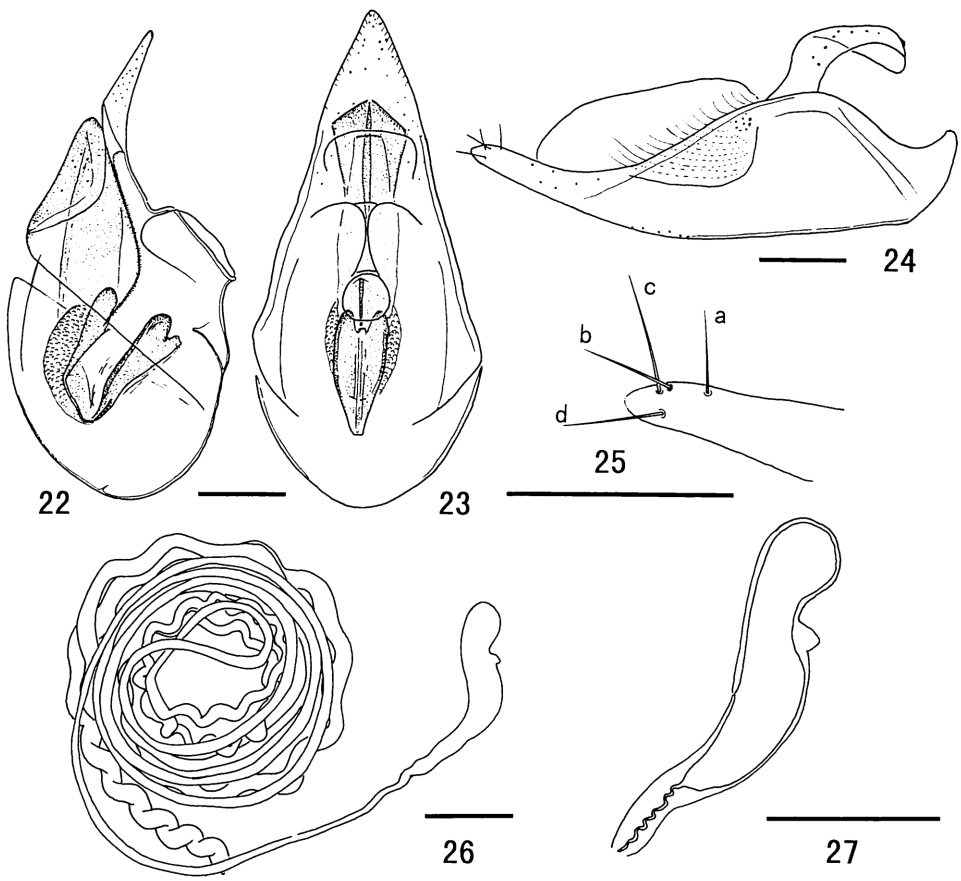


Figs. 18–21. *Tetrabothrus septentrionalis* KISHIMOTO; 18, 8th tergite; 19, 8th sternite; 20, 9th and 10th tergites; 21, 9th sternite. Scale: 0.5 mm.

Median lobe (Figs. 22–23), viewed ventrally, ovate at base, gradually and straightly narrowed apicad, with rounded apex. In lateral view, ventro-median part abruptly produced; apical part weakly and gradually curved ventrad. Paramere (Fig. 24):— base of velum with some pores; apical lobe of paramerite as shown in Fig. 25; all setae on outer side; *a* as long as *b*; *c* as long as *d*, longer than *a* or *b*.

Female. Spermatheca (Figs. 26–27) complicatedly coiled many times; apical part gourd-shaped, strongly constricted.

Specimens examined [additional records]. [Hokkaido]: 1 ex., Teshio Riv., Teshio-chô, 26–VIII–1992, S. HORI leg. [Honshu]: 1 ex., Nukumidaira, Yamagata Pref., 9–VIII–1969, Y. SHIBATA leg.; 1 ex., Mt. Azuma, Fukushima Pref., 10–VII–1985, S. NOMURA leg.; 1 ex., Okukinu, Nikkô-shi, Tochigi Pref., 21–VII–1987, S. NOMURA leg.; 1 ex., Chûzenji, Nikkô-shi, Tochigi Pref., 30–VI–1982, S. NAOMI leg.; 1 ex., Nikkô-yumoto, Nikkô-shi, Tochigi Pref., 25–VII–1985, S. NOMURA leg.; 1 ex., Kamiyama, Hakone-machi, Kanagawa Pref., 13–VIII–1970, Y. HIRANO leg.; 1 ex., Gozaishi-kôsen, Nirasaki-shi, Yamanashi Pref., 24–VII–1991, Y. SHIBATA leg.; 1 ex., Aokigahara, Mt. Fuji, Yamanashi Pref., 20–VII–1982, S. NAOMI leg.; 1 ex., Inago Spa, Yatsugatake Mts., Nagano Pref., 13–VII–1959, T. SHIBATA leg.; 1 ex., Ogamigô, Shirakawa-mura, Gifu Pref., 3–VIII–1998, K. MIZOTA leg. (on a log); 1 ex., same locality, 5–VIII–1998, M. MARUYAMA leg. (under dead leaves); 1 ex., Mt. Obako, Nara Pref., 27–VI–1982, T.



Figs. 22–27. *Tetrabothrus septentrionalis* KISHIMOTO; 22, median lobe of male genitalia, lateral aspect; 23, ditto, ventral aspect; 24, paramere of male genitalia; 25, ditto, apical lobe of paramerite; 26, spermatheca; 27, ditto, apical part. Scale: 0.1 mm.

SHIBATA leg.; 1 ex., Mt. Mayasan, Kôbe-shi, Hyôgo Pref., 12–VI–1996, H. HOSHINA leg.; 2 exs., Haigamine, Kure-shi, Hiroshima Pref., 12–VII–1987, I. OKAMOTO leg. [Shikoku]: 1 ex., Minokoshi, Tokushima Pref., 1–VIII–1960, T. SHIBATA leg.; 1 ex., Mt. Tsurugi, Tokushima Pref., 28–VII–1961, M. T. CHÛJÔ leg.

Distribution. Japan (Hokkaido, Honshu, Shikoku [new to Honshu and Shikoku]).

Remarks. This species is easily distinguished from *T. japonicus* by the smaller and slenderer body, and from *T. validus* sp. nov. by the smaller body, the less transverse elytra, and the 3rd to 7th tergites pubescent.

Biological notes. This species is rarely collected from under dead leaves by sifting and pit-fall trapping. Life cycle is unknown.

Tetrabothrus validus MARUYAMA et KISHIMOTO, sp. nov.

[Japanese name: Oni-kombou-higebuto-hanekakushi]

(Figs. 28–36)

Body length: 5.5–6.6 mm (from front margin of head to anal end); 2.6–2.9 mm (from front margin of head to apices of elytra).

Body (Fig. 28) elongate and stout, shining. Color reddish brown; legs yellowish brown, with apices of femora and base of tibiae brownish.

Male (Holotype). Head less transverse than in the other species (width/length= 1.26) and weakly convex above, distinctly narrowed posteriad to constricted neck; surface sparingly covered with long recumbent pubescence, central part glabrous; eyes large and prominent, longitudinal diameter of an eye nearly as long as postocular part. Antennae (Fig. 28) clavate; 1st segment stout, somewhat dilated apically, nearly twice as long as broad; 2nd segment shorter than the 1st; 3rd segment shorter than the 2nd, longer than broad; 4th–10th apparently broader than long; 11th conical, as long as broad; relative length (width) of each segment from base to apex:— 2.1 (1.0): 1.5 (0.8): 1.3 (0.8): 0.4 (1.2): 0.7 (1.4): 0.9 (1.4): 0.8 (1.5): 0.7 (1.5): 0.65 (1.5): 0.6 (1.4): 1.1 (1.1).

Pronotum subquadrate and convex, narrowly and distinctly bordered except for subtruncated anterior median margin, a little broader than long (width/length=1.13), and a little broader than head (pronotum/head=1.14), widest just behind the posterior margin; middle part subparallel-sided; posterior margin uniformly rounded; surface similarly pubescent to head, with 6 pairs of black suberect bristles. Scutellum triangular; surface smooth, with 3 pairs of long pubescence. Elytra transverse, narrowed anteriad, broader than long (width/length=1.55), and much broader than pronotum (elytra/pronotum=1.75); posterior margin of each elytron obliquely truncated, forming a slight re-entrant angle at suture; surface apparently more densely covered with long recumbent pubescence than on pronotum, which forms many bundles of 2–4 pubescence, and with 2 pairs of black suberect bristles. Legs long; relative length of each segment from base to apex: foretarsus:— 0.6: 0.7: 0.7: 1.8; midtarsus:— 1.0: 0.8: 0.7: 0.6: 1.7; hindtarsus:— 1.5: 1.1: 1.1: 0.9: 2.1.

Abdomen well developed, 4th–8th segments gradually narrowed posteriad; surface of all tergites completely glabrous, except for black apical bristles; 3rd–6th tergites deeply and broadly excavated at each base; 8th tergite (Fig. 29) truncated apically, with 5 long black bristles, and fine pubescence apically; 8th sternite (Fig. 30) with 9 or 10 long black bristles, and with long pubescence apically; 9th and 10th tergites (Fig. 31) with 3 black bristles, respectively; 10th tergite with a row of long and thick setae at base; 9th sternite as shown in Fig. 32.

Macrochaetotaxy of 3rd to 10th tergites:— 2: 2: 2: 2: 2: 5: 3: 3.

Median lobe (Figs. 33–34), viewed ventrally, ovate at base, gradually and somewhat roundly narrowed apicad, with rounded apex. In lateral view, ventro-median part abruptly and more strongly produced; apical part weakly curved ventrally. Paramere

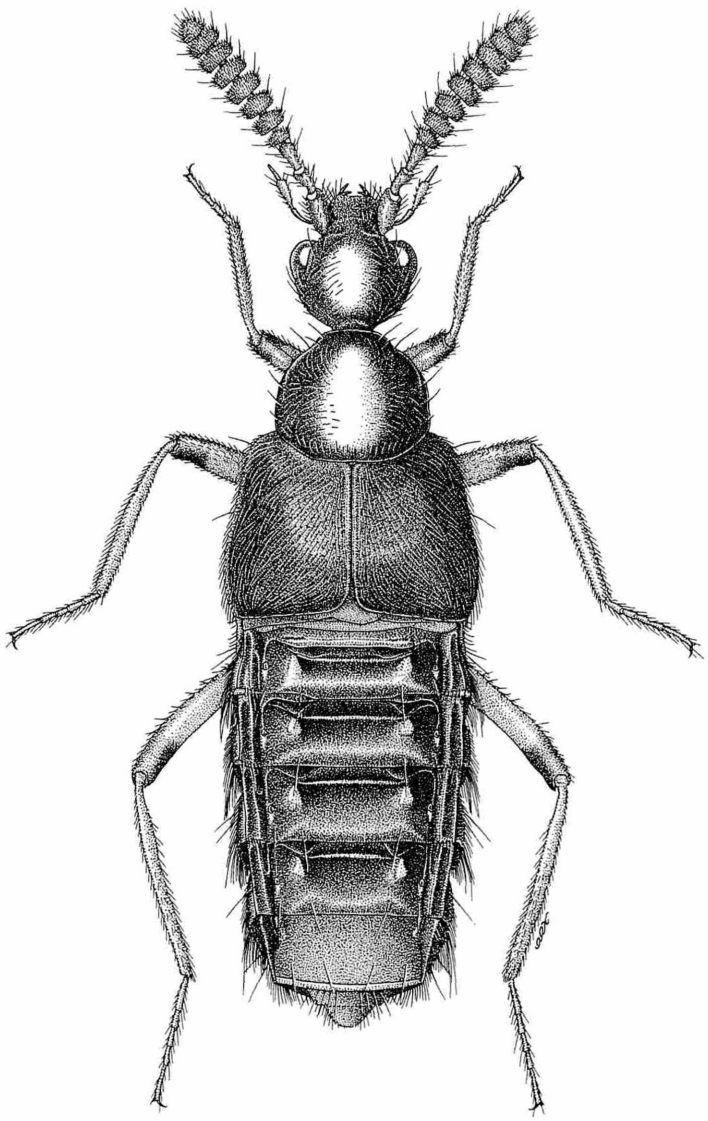
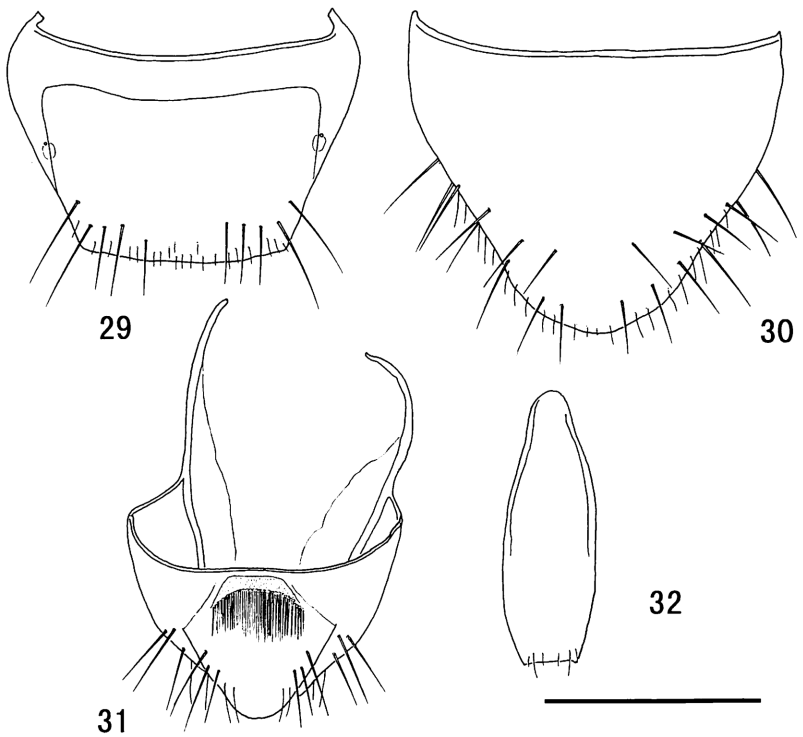


Fig. 28. Habitus of *Tetrabothrus validus* MARUYAMA et KISHIMOTO, sp. nov.

(Fig. 35):— base of velum with some pores; apical lobe of paramerite as shown in Fig. 36; *c* and *d* on outer margin; *a* as long as *b*; *d* the longest, twice as long as *a* or *b*.

Female. Unknown.

Type series. Holotype: male, Ôyato, Enkaizan, Yokohama-shi, Kanagawa Pref., 27–III–1993, K. KUBO leg. Deposited in the collection of the Laboratory of Entomol-



Figs. 29–32. *Tetrabothrus validus* MARUYAMA et KISHIMOTO, sp. nov.; 29, 8th tergite; 30, 8th sternite; 31, 9th and 10th tergites; 32, 9th sternite. Scale: 0.5 mm.

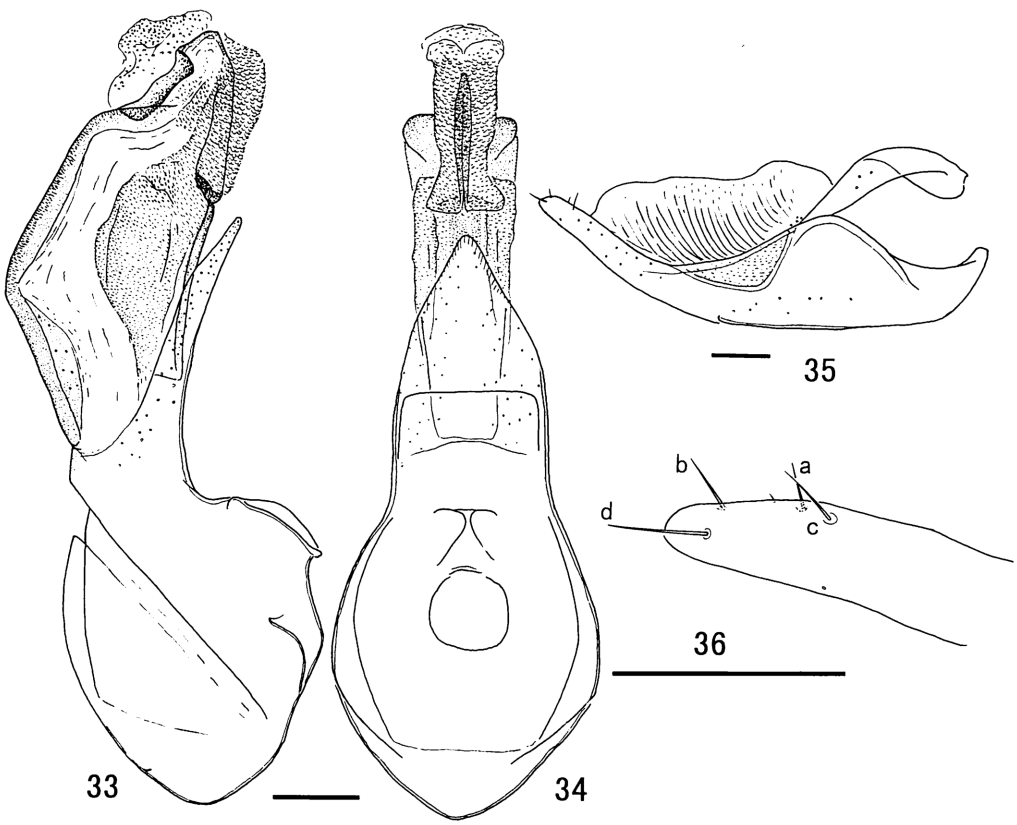
ogy, Tokyo University of Agriculture. Paratype: 1 male, same locality as holotype, 31–V–1994, K. KUBO leg.; 1 male, Honmachida, Machida-shi, Tokyo Pref., 27–VI–1998, S. YOSHIDA leg.

Distribution. Japan (Honshu).

Remarks. This species is closely allied to *T. laticornis* (WASMANN), but is distinguished from the latter by the conformation of pronotum, which is widely bordered in the latter, and the shape of the aedeagus (MARUYAMA, in prep.). Similar to *T. septentrionalis* among the Japanese species, but easily distinguished from it by the larger body, the more transverse elytra, and the 3rd to 7th tergites without pubescence. The chaetotaxy is not described here because of the paucity of available specimens for dissecting the mouthparts.

Biological notes. According to Mr. H. WATARI, the holotype and the paratype obtained on Enkaizan, Yokohama were collected by sweeping along the edge of a secondary broadleaved forest on warm and fine spring days when many insects were on wings. The paratype from Machida, Tokyo is found perching on a wall near a light at night.

Etymology. Named for the stout body.



Figs. 33–36. *Tetrabothrus validus* MARUYAMA et KISHIMOTO, sp. nov.; 33, median lobe of male genitalia, lateral aspect; 34, ditto, ventral aspect; 35, paramere of male genitalia; 16, ditto, apical lobe of paramerite. Scale: 0.1 mm.

Acknowledgements

We wish to express our cordial thanks to Professor Masaaki SUWA and Dr. Masahiro ÔHARA of Hokkaido University and to Dr. Shun-Ichi UÉNO and Professor Yasuaki WATANABE of Tokyo University of Agriculture, for their continuous guidance. Our hearty thanks are also due to Mr. Itsuro KAWASHIMA for preparing excellent figures of whole insects, and to the following entomologists and colleagues for their help in material used for this study: Drs. Shun-Ichiro NAOMI, Shûhei NOMURA, Nobuo OHBAYASHI, Masahiro SAKAI, Messrs. Yasuhiko HAYASHI, Hideto HOSHINA, Kôji MIZOTA, Hiroki MIZUSHIMA, Yasutoshi SHIBATA, Takashi SHIMADA, Koji TOYODA, Tatsuya UEBI, Hiroshi WATARI, Kazuo YAMAZAKI, Susumu YOSHIDA and Hiroyuki YOSHITOMI.

要　約

丸山宗利・岸本年郎：日本産*Tetrabothrus*属ハネカクシの再検討．—— KISHIMOTO (1997)以降に筆者らの手許に集まった標本により，日本産のコンボウヒゲブトハネカクシ属（新称）に含まれる種の再検討を行った．コンボウヒゲブトハネカクシ*T. japonicus*とキタコンボウヒゲブトハネカクシ*T. septentrionalis*の雄交尾器と口器の刺毛配列を初めて記載および図示し，*T. japonicus*を四国と屋久島から，*T. septentrionalis*を本州と四国から新たに記録した．また，関東の平地で発見された新種に，オニコンボウヒゲブトハネカクシ*T. validus* MARUYAMA et KISHIMOTOと命名して記載した．本種は，複眼が小さいことでコンボウヒゲブトハネカクシから，また第3から第7腹背板に軟毛を欠くことでキタコンボウヒゲブトハネカクシから，明瞭に識別できる．

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NAKANE, T., 1991. Notes on some little-known beetles (Coleoptera) in Japan. 8. *Kita-Kyûshû no Konchû*, *Kokura*, **38**: 111–115.

NAOMI, S., & M. MARUYAMA, 1997. A revision of the genus *Sepedophilus* GISTEL (Coleoptera, Staphylinidae, Tachyporinae) from Japan: species group of *S. armatus* SHARP. *Jpn. J. syst. Ent*., **3**: 239–257.

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Elytra, *Tokyo*, **27** (2): 518, November 13, 1999

Notes on the Myrmecophilous Rove Beetle, *Ophryomedon marginatus* (Coleoptera, Staphylinidae, Paederinae)

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When NAOMI (1995) described *Ophryomedon marginatus,* he noted that all the specimens of the species were collected from nests of ants. However, he did not record the species of its host ant. Besides, there has been no report referring to the host ant. In this paper, we will record the host ant and report additional data.

We thank Mr. Shûji FUKUI (Shimane), Mr. Tateo ITO (Kyoto) and Mr. Iwao OKAMOTO (Hiroshima) for their kindness in giving us the opportunity to examine the specimens. Thanks are also due to Dr. Haruki TATSUTA (Tokyo University) for his comment on this paper.

Ophryomedon marginatus NAOMI

Ophryomedon marginatus NAOMI, 1995, Jpn. J. syst. Ent., **1**: 161. (Type locality: Mt. Konishi-dake, Imari City, Saga Pref.)

Specimens examined. HONSHU: 1 ex., Kasuga, Nara Pref., 20–IV–1985, T. ITO leg.; 1 ex., same locality, 18–X–1985, T. ITO leg.; 1 ex., same locality, 31–V–1987, T. ITO leg.; 3 exs., Tsuki Is., Shimane Pref., 6–V–1988, S. FUKUI leg. (from the nest of ants); 3 exs., Itsukushima, Miyajima, Hiroshima Pref., 28–IV–1988, I. OKAMOTO leg.; 1 ex., same locality, 15–X–1988, I. OKAMOTO leg. (These specimens are deposited in the private collection of the authors.)

Distribution. Japan (Honshu, Kyushu).

Host ant. *Brachyponera chinensis* EMERY, 1895 [Japanese name: Ô-hari-ari].

Notes. According to the private note of Mr. S. FUKUI, the beetle was found from inside the ant nest under the bark of a fallen tree.

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Elytra, *Tokyo*, **27** (2): 519–534, November 13, 1999

Contributions to the Knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China

Part 15. Genus *Strouhalium* SCHEERPELTZ, 1962. Section 3. Genus *Quedius* STEPHENS, 1829. Subgenus *Microsaurus* DEJEAN, 1833. Section 9

Aleš SMETANA

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Abstract Taxonomic and faunistic data on the species of the genera *Strouhalium* and *Quedius*, subgenus *Microsaurus*, from the People's Republic of China are provided. Three cave-dwelling species are described as new: *Q. krali* (from Sichuan), *Q. kishimotoi* (from Guizhou) and *Q. feihuensis* (from Hunan). *Quedius przewalskii* REITTER, 1887 is discussed and *Q. lamus* SMETANA, 1995 is placed in synonymy with it (new synonymy). The distributional range and details about the habitat requirements of *Strouhalium gracilicorne* are presented and discussed.

This paper deals mainly with the species of the genera *Strouhalium* and *Quedius*, subgenus *Microsaurus*, that were recently collected in caves in Sichuan, Guizhou and Hunan, and with the species related to *Quedius przewalskii*. Species of the latter group apparently require specialized, talus related habitats and may also occur in rodent burrows (see below). Recently, I was able to study the holotype of *Q. przewalskii*, which was until now the only type of the species previously described from the territory of the People's Republic of China I have not seen (see SMETANA, 1997, 451). In a paper that unfortunately escaped my attention, BOHÁČ (1988, 554) redescribed the holotype of *Q. przewalskii*, deposited in the collection of the Institute of Zoology, Russian Academy of Sciences, St. Petersburg. As I suspected (SMETANA, 1997, 451), one of the species of this group (*Q. lamus*) I recently described as new (SMETANA, 1995) turned out to be conspecific with *Q. przewalskii* and is therefore considered a junior synonym of it (see below).

Strouhalium gracilicorne SCHEERPELTZ

Strouhalium gracilicorne SCHEERPELTZ, 1962, 268.

New records. China: [Sichuan]: Chengkou Xian, Beiping, Shentian (1,690 m), 27–IX–1997, S.-I. UÉNO, 1 ♀; Chengkou Xian, Gaonan Xiang, Mojiawan, 1,250 m, 26–IX–1997, Y. NISHIKAWA, 1 ♀; Baoxing Xian, Yaoqi, Mahuanggou, 2,370–2,420 m, 2–X–

1997, T. KISHIMOTO, 1♂, in the SMETANA collection; Daofu Xian, Zheduo Mountains, Geda Liangzu, 3,500 m, 8–IX–1998, S.-I. UÉNO, 1♀; Jiuzhaigou Xian, Jiuzhaigou, Changhai, 3,100 m, 28–VIII–1998, Y. NISHIKAWA, 1♀. [Guizhou]: Shuicheng Xian, Shega, Anjia Yan Cave, 2,050 m, 17–IX–1998, T. KISHIMOTO or Y. NISHIKAWA, 5♂♂, 4♀♀, 1♂ and 2♀♀ in the SMETANA collection.

Comments. The specimens studied agree well with those from Pakistan, Nepal and those reported previously from Sichuan (SMETANA, 1998, 97); but there are again slight differences in several characters, which confirms the statement (SMETANA, *l.c.*) that *S. gracilicorne* is indeed a variable species, with separate populations showing a tendency to differ from each other. This is in fact consistent with the habitat requirements of the species, presented below.

Strouhalium gracilicorne is a species with remarkably wide distribution in the mountains of eastern Asia, being at present known from Pakistan in the west and eastward through the Himalaya to Sichuan and Guizhou in China (the actual distribution in the mountains of China will undoubtedly be much wider than what is known at present). This is even more remarkable considering that the species seems to be rather selective (stenoek) as far as the habitat requirements are concerned.

The specimens from Pakistan were collected by sifting rotten *Abies*-wood, under the bark of a dead *Abies*, and under rocks along a stream near snow; the specimen from Nepal was taken by sifting wet debris and vegetation on a talus slope with a small seepage (SMETANA, 1993, 89). It was speculated (SMETANA, *l.c.*) that the specimens associated with the dead *Abies* trees may have been taken either from their hibernation sites, or from habitats used by the larvae for pupation.

The first specimens from China (Sichuan) (SMETANA, 1998, 97) were taken either from under larger rocks near streams, or walking on open ground. The free living specimens from Sichuan, reported in this paper, were collected from under a large rotten log partly embedded in the ground at the side of a narrow stream in a deciduous broadleaved forest just below the *Abies* zone (Shentian), from a small colluvium deposited at the side of a narrow stream shaded by a secondary deciduous broadleaved forest (Mojiawan), from piles of slabs and fist-sized stones partly submerged in the water of Chang Hai Lake, and those from the Geda Liangzu pass were sifted from dead leaves accumulated under *Salix* and *Quercus* trees growing along a source of the valley on the northeastern side of the pass. The specimens from Guizhou, collected in Anjia Yan Cave, were taken, together with *Quedius kishimotoi*, from muddy spaces among large rocks in the boulder chamber of the cave, mostly from under plant debris.

All bionomical data, available so far, indicate that *Strouhalium gracilicorne* is a species living in the habitats that are characteristic of many trechine ground beetles. The rather flat body shape, the long macrosetae of the body, and the long appendages, are clearly adaptations to underground life. The occurrence of *S. gracilicorne* in Anjia Yan Cave is therefore quite consistent with these findings and not surprising. The specimens from this cave represent the most numerous collection of this species made so far.

Quedius (*Microsaurus*) *przewalskii* REITTER

(Figs. 1–7)

Quedius przewalskii REITTER, 1887, 211; BOHÁČ, 1988, 554.
Quedius lamus SMETANA, 1995, 239 (syn. nov.).

Quedius przewalskii was redescribed by BOHÁČ (1988, 554), who also briefly described and illustrated the aedoeagus. To make the description of *Q. przewalskii* comparable to those of Chinese species of *Quedius*, available now, I am adding a few comments, and a full description and illustration of the male sexual characters of the holotype, as well as a description and illustration of tergite 10 of the female genital segment of a recently collected female specimen (Qinghai, pass 55 km N Nanqên [see below for details]), believed to be conspecific with the holotype.

In general, the holotype of *Q. przewalskii* matches well the description of *Q. lamus* SMETANA, 1995, 239. However, it is somewhat larger (11.0 mm) (see *Comments*) and is of a uniformly brownish-red color (this is perhaps due to the "age" of the specimen); the temporal puncture on the head is situated distinctly closer to the posterior margin of the head than to the posterior margin of the eye; each of the dorsal rows of punctures on the pronotum has three punctures, and the posterio-lateral portions of the pronotum are more appreciably explanate.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 as wide as apex of tibia; segment 4 narrower than preceding segments. Sternite 8 with two larger setae on left side (one seta broken off) and with three larger setae on right side; with shallow and narrow, inconspicuous medio-apical emargination, small triangular area before emargination vaguely flattened and smooth (Fig. 1). Genital segment with tergite 10 similar to that described for *Q. lamus*, but somewhat narrower (Fig. 2); sternite 9 similar to that described for *Q. lamus*, but somewhat longer, with apical margin subtruncate (Fig. 3). Aedoeagus (Figs. 4, 5) similar to that described for *Q. lamus*, but paramere of slightly different shape, more distinctly asymmetrical and more distinctly shifted toward left side of median lobe, with apex minutely notched; sensory peg setae on underside of paramere arranged in a similar way (Fig. 5).

Female. First four segments of front tarsus similar to those of male, but appreciably less dilated; segment 2 somewhat narrower than apex of tibia (ratio 0.88). Genital segment with tergite 10 similar to that of *Q. moeris* SMETANA, 1995, with markedly differentiated, pigmented apical portion which is distinctly larger than that of *Q. moeris* (Figs. 6, 7, 9).

Type material. REITTER (1887, 211) described the species from a single male from "Quellgebiet des Gelben Flusses". The holotype, deposited in the collection of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, is labelled as follows: "Prj 84" [green label] / "VII. Huangho [next word illegible] 13 1/2–14 000 p." / "*Quedius* (*Ediquus*) *Przewalskyi* m.n.sp. Unicum" / "TYPUS" [red label]. It was received dissected, with the aedoeagus glued to the plate with the beetle. The specimen

is intact; the abdominal tergite and sternite 8, the genital segment, and the aedoeagus were mounted into Canada balsam on two transparent plates, attached to the pin with the beetle. — The type locality (the source of the river Huang He [Yellow River]) is in the province of Qinghai.

Additional material. China: [Qinghai]: pass 55 km N Nanqen, 32.25N 96.32E, alpine meadow 3,700 m, 9–VII–95, J. TURNA, 1 ♀, in the SMETANA collection, Ottawa; pass 30 km N Nanqen, 32.20N 96.33E, alpine meadow 4,200 m, 7–VII–95, J. TURNA, 1 ♂, in the Naturhistorisches Museum, Wien, Austria. [Tibet]: "Chola Shan", road Yanjing–Markam, 50 km S Markam, mixed forest ca. 4,400 m, 29.16N 98.38E, M. TRÝZNA and O. ŠAFRÁNEK, 1 ♂, in the SMETANA collection; "Lao Shan" pass, road Markam–Zogang, 10 km W Markam, 29.42N 98.32E, alpine meadow 4,300 m, 27~28–VI–97, J. TURNA, 1 ♂, in the SCHÜLKE collection, Berlin. [Yunnan]: Xue Shan nr. Zhongdian, 4,000 m, 27.49N 99.34E, 24~26–VI–96, A. SMETANA, [C42], 1 ♀, in the SMETANA collection.

Comments. As it is apparent from the notes above, the holotypes of *Q. przewalskii* and *Q. lamus* differ in some details, including the chaetotaxy on the head. However, for reasons discussed below, I believe that they are conspecific and I am therefore considering *Q. lamus* as a junior synonym of *Q. przewalskii*.

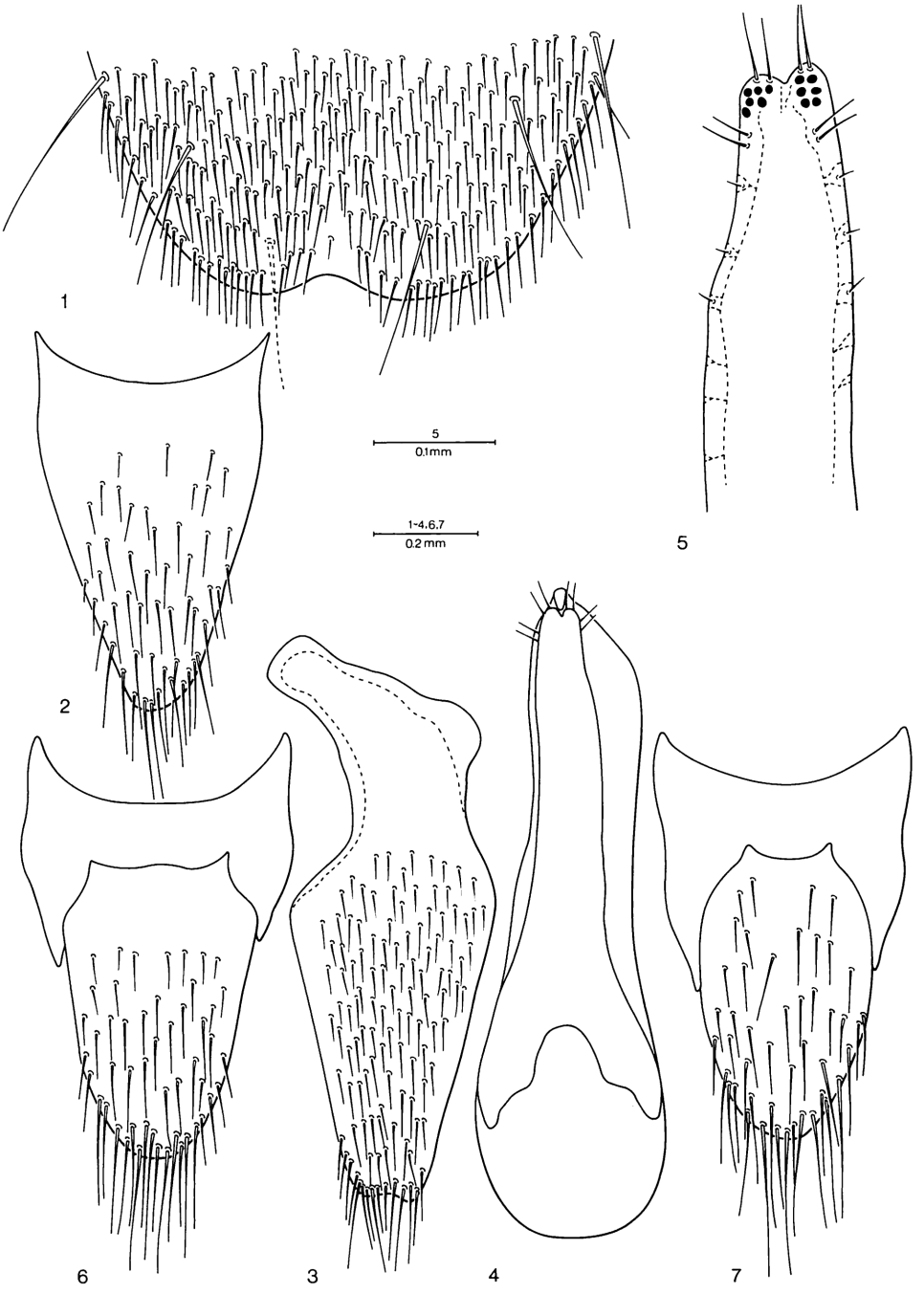
Quedius przewalskii is a member of a group of species that I postulate to live in burrows of rodents, and/or in talus-type habitats (microcaverns) in high montane regions of China. This is based on a few available collecting data of some Chinese specimens, but a positive proof of its occurrence in rodent nests is not available at present.

Based on the larger amount of material now available, species of the group to which *Q. przewalskii* belongs, seem to be rather variable in a number of characters, such as the chaetotaxy on the head (mainly the position of the posterior frontal and temporal punctures, see also SMETANA, 1997, 455), the shape of both the head and pronotum, and the body form and size. This likely may be attributed to the fact that these flightless species live at high mountain elevations, resulting in separate populations tending to differ from each other.

Three species of this group are known at present. They are easily recognizable as follows: size large (9.7–12.0 mm); body color from pale reddish-brown to dark brownish-piceous; eyes very small, tempora therefore considerably longer than eyes seen from above, abdominal tergite 7 without whitish apical seam of palisade fringe. They may be determined using the following key:

1. Interspaces between elytral punctation with microsculpture of very fine irregularities, resulting in surface of elytra appearing dull. Tergite 10 of female genital segment with medio-apical portion pigmented, but not markedly differentiated from remainder of tergite (fig. 21 in SMETANA, 1995). [Male unknown]. Length 10.3 mm. Northern Sichuan..... *Q. petilius* SMETANA

— Interspaces between elytral punctation without microsculpture, but sometimes with micropunctulation, surface of elytra not appearing dull. Tergite 10 of female geni-



Figs. 1–7. *Quedius przewalskii* (1–5=holotype): 1, apical portion of male sternite 8; 2, tergite 10 of male genital segment; 3, sternite 9 of male genital segment; 4, aedoeagus, ventral view; 5, apical portion of underside of paramere; 6 and 7, tergite 10 of female genital segment.

tal segment with distinctly differentiated, pigmented, elongate-hexagonal apical portion (Figs. 6, 7, 9). 2

2. Paramere of aedoeagus slightly curved toward left side of median lobe, in general narrower, appearing more or less asymmetrically located on median lobe (Fig. 4). Medio-apical emargination of male sternite 8 shallow, inconspicuous (Fig. 1). Differentiated apical portion of female tergite 10 large (Figs. 6, 7). Antenna more slender, outer segments usually about as long as wide. Length 9.7–12.8 mm. Tibet, Qinghai, northern Yunnan. . . . . *Q. przewalskii* REITTER

— Paramere of aedoeagus situated along midline of median lobe, in general wider and more robust, appearing symmetrically located on median lobe (fig. 8 and fig. 19 in SMETANA, 1995 a). Medio-apical emargination of male sternite 8 wider and deeper (fig. 16 in SMETANA, 1995 a). Differentiated apical portion of female tergite 10 small (Fig. 9). Antenna more robust, outer segments usually slightly wider than long. Length 10.4–12.0 mm. Qinghai, northern Sichuan. . . . . *Q. moeris* SMETANA

Quedius (*Microsaurus*) *moeris* SMETANA

(Figs. 8, 9)

Quedius moeris SMETANA, 1995 a, 241.

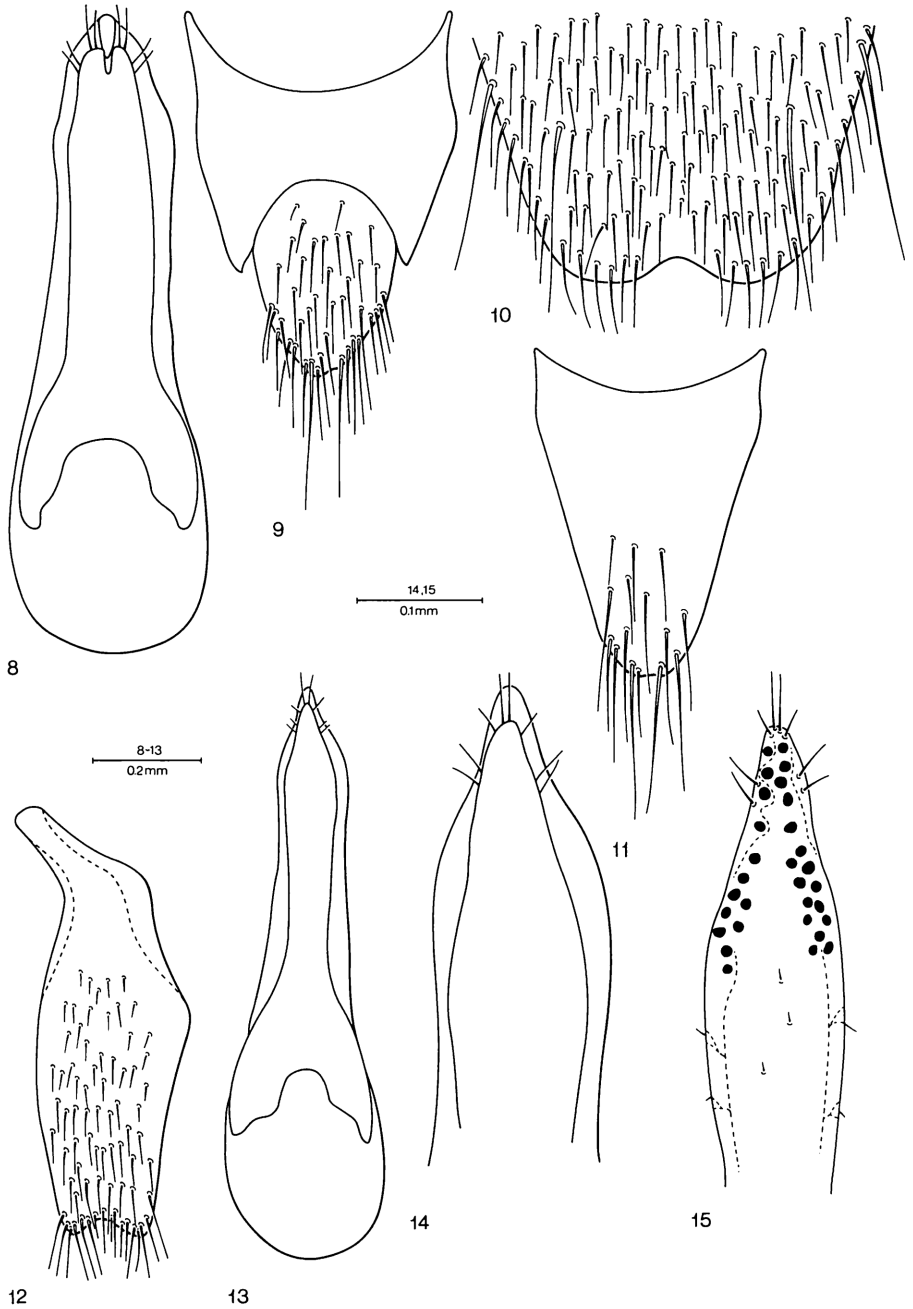
New records. China: [Sichuan]: Zheduo Shankou, Kanding (=Kangding), 1–X–96, M. SATÔ, 1 ♀, in the collection of the National Science Museum (Natural History), Tokyo, Japan; road Sêrtar–Darcang, 20 km SSE Darcang, VII–95, J. KALÁB, 1 ♂, in the SMETANA collection, Ottawa, Canada.

Comments. The specimen from near Kangding was found among the rocks of a large moraine on the east side of the Zheduo pass.

Quedius (*Microsaurus*) *krali* sp. nov.

(Figs. 10–15)

Description. Dark brownish-piceous, head black, abdomen somewhat darker than elytra, underside piceous to piceous-black, except ventral surface of head, deflected portions of pronotum, prosternum and front coxae brunneous; head and pronotum slightly, abdomen markedly iridescent; maxillary and labial palpi testaceous, antennae brunneopiceous, first two segments somewhat paler, rather dark rufobrunneous, legs dark brunneopiceous, front tarsi markedly paler, medial faces of tibiae, particularly of hind tibiae, blackened. Head of rounded quadrangular shape, about as long as wide (but appearing slightly longer than wide), rather parallel-sided behind eyes, posterior angles entirely rounded; eyes very small, flat, entirely blending with lateral contours of head, tempora considerably longer than eyes seen from above (ratio 1.96); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated slightly closer to posteriomedial margin of eye than to posterior mar-



Figs. 8–15. —— 8, 9. *Quedius moeris*: 8, aedoeagus, ventral view; 9, tergite 10 of female genital segment. —— 10–15. *Quedius krali*: 10, apical portion of male sternite 8; 11, tergite 10 of male genital segment; 12, sternite 9 of male genital segment; 13, aedoeagus, ventral view; 14, apical portion of aedoeagus, ventral view; 15, apical portion of underside of paramere.

gin of head, two punctures behind it at posterior margin of head; temporal puncture situated distinctly closer to posterior margin of head than to posterior margin of eye; tempora with a few fine punctures; surface of head with extremely fine, dense microsculpture of transverse waves, with sparse micropunctulation, surface therefore appearing rather shiny. Antenna relatively long, moderately incrassate toward apex, segment 3 longer than segment 2 (ratio 1.42), segments 4 and 5 somewhat longer than wide, following segments about as long as wide, segments 9 and 10 vaguely wider than long, last segment as long as two preceding segments combined. Pronotum about as long as wide, widest at about middle, about equally narrowed anteriad and posteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, posterio-lateral portions narrowly, vaguely explanate; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated before level of large lateral puncture; microsculpture similar to that on head, but excessively fine and dense, surface of pronotum therefore appearing even slightly shinier than that of head. Scutellum distinctly punctate medio-apically, surface with extremely fine microsculpture of transverse striae. Elytra relatively long, at base narrower than pronotum at widest point, scarcely widened posteriad, at suture as long as, at sides longer than pronotum at midline (ratio 1.17); punctation and pubescence moderately coarse, dense, transverse interspaces between punctures mostly vaguely smaller than diameters of punctures, punctation appearing slightly asperate; pubescence piceous-black, rather strong and rigid; surface between punctures without microsculpture. Wings each folded once under elytron, very likely non-functional. Abdomen with tergite 7 (fifth visible) with fine whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites finer and somewhat sparser than that on elytra, becoming slightly sparser toward apex of each tergite, and in general toward apex of abdomen; first visible tergite appreciably more sparsely punctate and pubescent than tergite 3 (second visible); pubescence piceous-black, strong and rather rigid; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly, but in general only moderately dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 about as wide as apex of tibia; segment 4 narrower than preceding segments. Sternite 8 with two long setae on each side, with moderately wide and deep, obtusely triangular medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 10). Genital segment with tergite 10 obtusely triangular, with two feebly differentiated apical setae and with several shorter setae in front of them (Fig. 11); sternite 9 with rather short and narrow basal portion, apical portion slightly asymmetrical, with apex markedly emarginate, without differentiated apical or subapical setae (Fig. 12). Aedoeagus (Figs. 13–15) small; median lobe with almost parallel-sided middle portion, slightly dilated before rather short subacute apex. Paramere narrow and elongate, with parallel-sided middle portion, apical portion elongate-lancet shaped, with acute apex about reaching apex of median lobe; four fine setae at apex (medial pair longer than lateral pair, four fine seate at each lateral margin below

apex); sensory peg setae on underside of paramere numerous, forming two irregular, longitudinal lateral groups that connect anteriorly. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but less dilated, segment two slightly narrower than apex of tibia. Tergite 10 of genital segment about same as that of *Q. kishimotoi*.

Length 8.0 mm.

Type material. Holotype (male): China: "CHINA: SE Sichuan Jinfo Shan, 29°01N 107°14E 2,240 m, 26. VI. 1998 D. Král"/"1998 China Expedition J. Farkač, D. Král, J. Schneider & A. Smetana". In the SMETANA collection, Ottawa, Canada.

Allotype (female): China [Sichuan]: Nanchuan Shi, Mt. Jinfo Shan, Gufo Dong Cave, 1,950 m, 26–VIII–1999, F. WANG leg. In the collection of the National Science Museum (Natural History), Tokyo, Japan.

Paratypes: China: [Sichuan]: same data as allotype, but T. KISHIMOTO leg., 1♂, in the SMETANA collection; Nanchuan Shi, Mt. Jinfo Shan, Heifeng Dong Cave, 1,900 m, 26–VIII–1999, 1♀, S.-I. UÉNO leg. and 1♂, 1♀, T. KISHIMOTO leg. In the collection of the National Science Museum (Natural History), Tokyo, Japan (1♂, 1♀) and in the SMETANA collection (1♀).

Geographical distribution. *Quedius krali* is known only from Gufo Dong Cave, one of the Jinfo Dong cave system, and Heifeng Dong Cave in the top portion of the main peak of Jinfo Shan in southern Sichuan.

Bionomics. The holotype was taken in the dark part of the cave (about 50 m down from the entrance) from fine gravel substrate under a dried out human excrement. The other specimens from Gufo Dong Cave were taken from under stones on only slightly moist ground just below the narrow entrance section of the cave. The specimens from Heifeng Dong Cave (air temperature 12°C) were taken from under heaps of dead bamboo leaves washed in by previous floods, at three spots (one close to water and wet, the other two away from water in rather dry places) on the left bank of the subterranean stream flowing through the cave.

Recognition and comments. *Quedius krali* may be easily recognized among the species with the scutellum punctate, in addition to the characters on the aedoeagus, by several external characters, namely by the very small, flat eyes, in combination with the position of both the posterior frontal and temporal punctures, by the extremely fine microsculpture on both the head and pronotum, and by the relatively long elytra with moderately coarse, dense punctation appearing slightly asperate, and the rather strong and rigid elytral pubescence. The only species that resembles *Q. krali* is another new, cave-dwelling species from Guizhou, *Q. kishimotoi* (see below).

Etymology. Patronymic, the species was named in honor of the collector, Dr. David KRÁL, Department of Zoology, Charles University, Prague, Czech Republic, my good friend, who keeps carrying the "coleopterological torch" received from his late father, Josef KRÁL, a renowned halticid specialist, who also was my good friend.

Quedius (*Microsaurus*) *kishimotoi* sp. nov.

(Figs. 16–22)

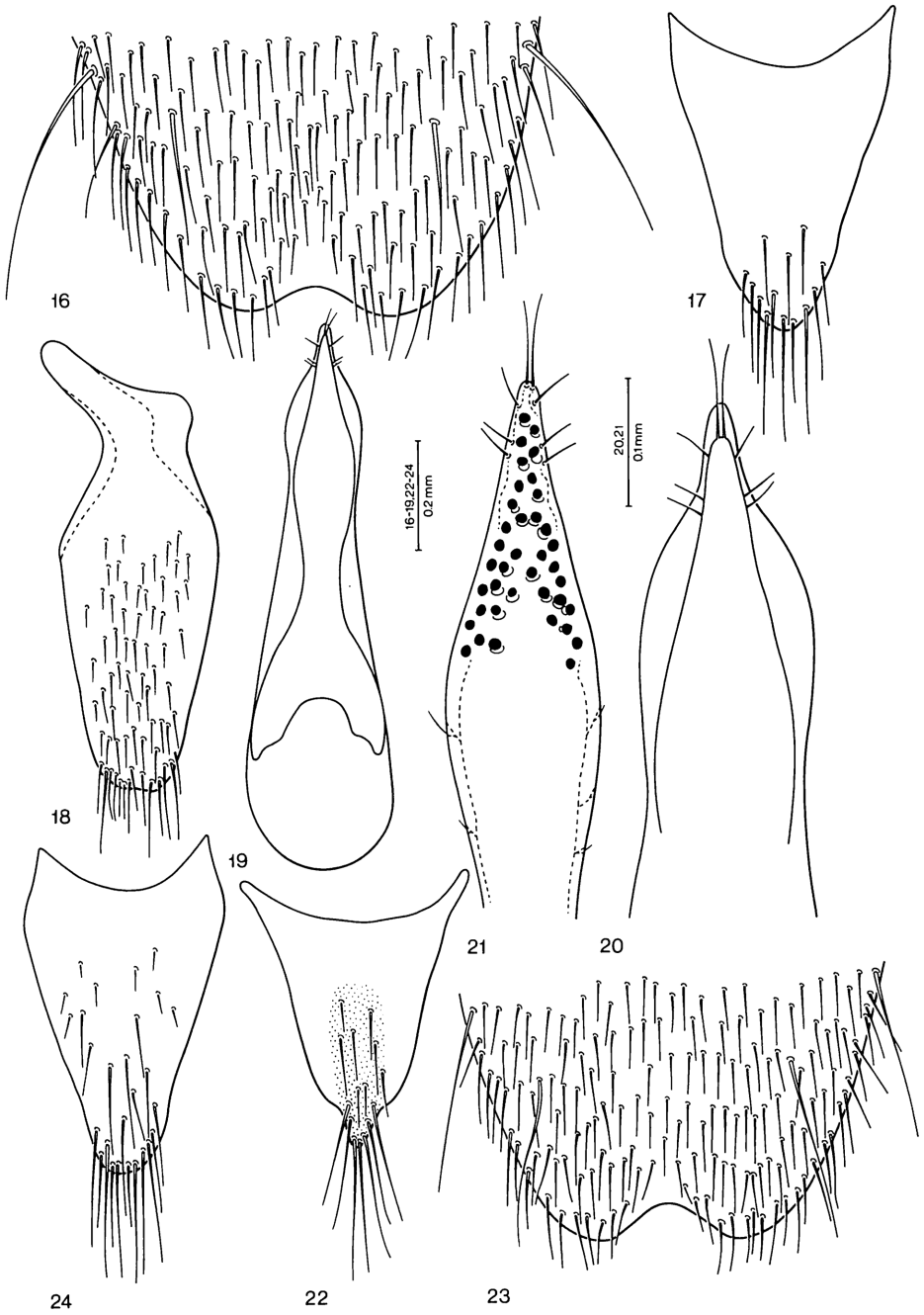
Description. In all characters, including chaetotaxy of head and pronotum, very similar to *Q. krali*, but different as follows: head black, pronotum piceous-black with margins narrowly, vaguely paler, elytra rufotestaceous, abdomen piceous, with lateral and apical portions of tergites somewhat paler, underside bicolored: ventral portion of head capsule partially, most of prosternum, front coxae, portions of metasternum and basal abdominal sternites testaceobrunneous to rufobrunneous, legs in general somewhat paler with paler tarsi (but otherwise with same color pattern); or head black, pronotum brunneopiceous with lateral portions indefinitely paler, elytra rufobrunneous, abdomen piceous with slightly paler apex, underside piceous-black, except deflected portions of pronotum and prosternum, and front and middle coxae brownish; legs more or less uniformly piceobrunneous (but with medial faces of middle and hind tibiae darkened). Head slightly wider than long (ratio 1.18), therefore appearing somewhat shorter and wider (but smaller and narrower in female, about as long as wide), eyes slightly larger and more convex, tempora somewhat less considerably longer than eyes seen from above (ratio 1.71); microsculpture on surface of head similar to that of *Q. krali*, but slightly more deeply engraved, surface therefore appearing less shiny. Antenna somewhat shorter, outer segments slightly shorter, appearing vaguely wider than long. Pronotum appearing wider, slightly wider than long (ratio 1.15), widest at about posterior third, slightly more narrowed anteriad than posteriad; surface with microsculpture similar to that of *Q. krali*, but somewhat more deeply engraved, surface therefore appearing less shiny.

Male. First four segments of front tarsus similar to those of *Q. krali*, but somewhat more dilated, segment 2 slightly wider than apex of tibia (ratio 1.12). Sternite 8 with medioapical emargination vaguely wider and deeper (Fig. 16). Genital segment with tergite 10 not appreciably different (Fig. 17); sternite similar, but with two vaguely differentiated apical setae, and with apex truncate, not emarginate (Fig. 18). Aedoeagus (Figs. 19–21) quite similar to that of *Q. krali*, but median lobe more distinctly widened apically and with attenuated apical portion slightly narrower, longer and sharper; paramere with lancet-shaped apical portion somewhat longer and more attenuate anteriad, sensory peg setae on underside more numerous, almost entirely covering apical portion of paramere and extended into short, posterior lateral group on each side.

Female. First four segments of front tarsus similar to those of male, but slightly less dilated, segment 2 about as wide as apex of tibia. Genital segment with tergite 10 narrowly pigmented medioapically, with appreciably differentiated, short subacute apical portion, with numerous setae at and near apex, and with several shorter setae in front of them on pigmented portion (Fig. 22).

Length 7.8–8.1 mm.

Type material. Holotype (male) and allotype (female): China: "[CHINA



Figs. 16–24. —— 16–22. *Quedius kishimotoi*: 16, apical portion of male sternite 8; 17, tergite 10 of male genital segment; 18, sternite 9 of male genital segment; 19, aedoeagus, ventral view; 20, apical portion of aedoeagus, ventral view; 21, apical portion of underside of paramere; 22, tergite 10 of female genital segment. —— 23, 24. *Quedius feihuensis*: 23, apical portion of male sternite 8; 24, tergite 10 of male genital segment.

Guizhou] Shuicheng Xian, Shega, Anjia Yan Cave (alt. 2,050 m), 17–IX–1998, Toshio KISHIMOTO leg." In the collection of the National Science Museum (Natural History), Tokyo, Japan.

Paratypes: China: [Guizhou]: same data as holotype, 1♂, in the SMETANA collection, Ottawa, Canada; Shuicheng Xian, Muqiao-cun, Shen Dong Cave (alt. 1,860 m) 16–IX–1998, Y. NISHIKAWA leg., 1♂, in the collection of the National Science Museum (Natural History), Tokyo.

Geographical distribution. At present, *Q. kishimotoi* is known only from two caves in northwestern Guizhou.

Bionomics. The specimens from the limestone Anjia Yan Cave were taken, together with those of *Strouhalium gracilicorne*, from muddy spaces among large rocks in the boulder chamber of the cave, mostly from under plant debris. The specimen from Shen Dong Cave was found clinging to a rotten log at the bottom of one of the vertical drops near the entrance shaft of the cave. The cave itself is a subvertical ponor opening at the lowest corner of a large doline.

Recognition and comments. *Quedius kishimotoi* may only be confused with *Q. krali* from Sichuan (see above), but it differs by the characters given above.

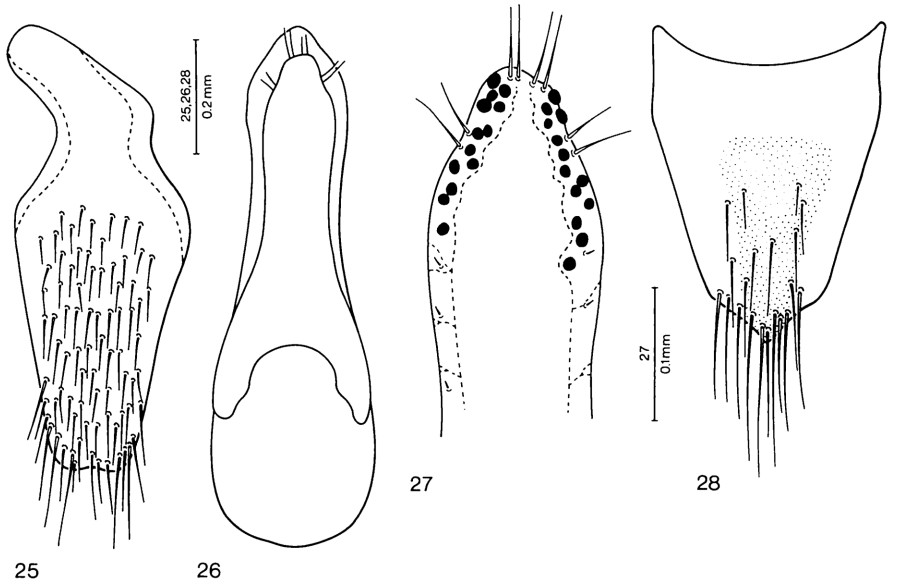
The two separate populations of *Q. kishimotoi* differ in coloration, but I am unable to detect any other characters that would justify a separation, even at subspecific level. However, since only very limited series of specimens is available at present, particularly of the population from Shen Dong Cave, the definite assessment of these populations must await the availability of further specimens for study. The population from Anjia Yan Cave is the one with the pale elytra and bicolored underside (see above). Both Anjia Yan and Shen Dong Caves harbour the cave-dwelling trechine genus *Guizhaphaenops* VIGNA TAGLIANTI, 1997, *G. zorzini* VIGNA TAGLIANTI, 1997 in the former, and a new species in the latter (UÉNO, personal communication).

Etymology. Patronymic, the species was named in honor of the collector, Dr. T. KISHIMOTO, Tokyo, Japan.

Quedius* (*Microsaurus*) *feihuensis sp. nov.

(Figs. 23–28)

Description. Piceous-black, elytral suture quite narrowly, apical margins of abdominal tergites and apex of abdomen slightly, inconspicuously paler; head and pronotum vaguely, abdomen more distinctly iridescent; maxillary and labial palpi testaceo-brunneous, antennae with first three segments piceous-black, base of second segment rufous, remaining segments brunneous, legs brunneous with paler tarsi, medial faces of front and particularly middle tibiae markedly darkened, hind femora and tibiae entirely piceous to piceous-black. Head of rounded quadrangular shape, indistinctly wider than long (ratio 1.1), slightly narrowed posteriad behind eyes, posterior angles obsolete; eyes moderately large and convex, slightly protruding from lateral contours of head, tempora slightly longer than eyes seen from above (ratio 1.14); no additional



Figs. 25–28. —— 25–27. *Quedius feihuensis*: 25, sternite 9 of male genital segment; 26, aedoeagus, ventral view; 27, apical portion of underside of paramere; 28, tergite 10 of female genital segment.

setiferous punctures between anterior frontal punctures; posterior frontal puncture and temporal puncture both situated closer to posterior margin of head than to posterior margin of eye, two punctures behind posterior frontal puncture at posterior margin of head; tempora with a few very fine punctures; surface of head with very fine and dense microsculpture of transverse waves with intermixed micropunctulation. Antenna short, hardly reaching middle of pronotum when reclined, slightly incrassate toward apex, segment 3 slightly longer than segment 2 (ratio 1.22), segment 4 as long as wide, segment 5 slightly, segments 6–10 increasingly wider than long, last segment as long as preceding two segments combined. Pronotum slightly wider than long (ratio 1.12), widest at about posterior third, slightly more narrowed anteriad than posteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three very fine punctures (allotype with only two punctures in right dorsal row); sublateral punctures each with only two punctures, posterior punctures situated distinctly before level of large lateral puncture; microsculpture similar to that on head, but denser. Scutellum impunctate, with very fine and dense microsculpture of transverse waves. Wings fully developed. Elytra moderately long, at base narrower than pronotum at widest point, vaguely widened posteriad, at suture about as long as, at sides somewhat longer than pronotum at midline (ratio 1.20); punctation and pubescence fine and moderately dense, transverse interspaces between punctures mostly about twice as large as diameters of punctures; pubescence piceous; surface between punctures without microsculpture. Wings fully de-

veloped. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites denser and slightly finer than those of elytra, almost evenly covering surface of each tergite, but in general becoming distinctly finer toward apex of abdomen; pubescence piceous; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 about as wide as apex of tibia; segment 4 narrower than preceding segments. Sternite 6 with small patch of denser pubescence in middle; sternite 8 with two long setae on each side, regular setation fine, with moderately wide and deep, obtusely triangular medioapical emargination, very small triangular area before emargination flattened and smooth (Fig. 23). Genital segment with tergite 10 rather small, with arcuate apex, with numerous setae at and near apex, and with shorter setae in front of them (Fig. 24); sternite 9 with basal portion small, short and narrow, apical portion rather large and wide, with apex broadly truncate-subsinuate, without appreciably differentiated apical or subapical setae (Fig. 25). Aedoeagus (Figs. 26, 27) rather small, short and stout; median lobe moderately constricted in middle portion, anteriorly narrowed into short, subacute apex. Paramere markedly narrower than median lobe, parallel-sided in middle portion, with apex of apical portion narrowly subtruncate and not reaching apex of median lobe; four fine setae at apex, two similar setae at each lateral margin below apex; sensory peg setae on underside of paramere forming two irregular lateral rows; internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but indistinctly less dilated; segment 2 vaguely narrower than apex of tibia (ratio 0.92). Genital segment with tergite 10 slightly pigmented medially, anteriorly rather abruptly narrowed into subacute apex, with numerous setae at apex and with shorter setae in front of them (Fig. 28).

Length 7.8–8.0 mm.

Type material. Holotype (male) and allotype (female): China: "[China] Hunan Pv. Longshan X., Huoyan, Feihu Dong Cave (260 m) 22–IX–1997 T. KISHIMOTO leg." Holotype in the collection of the National Science Museum (Natural History), Tokyo, Japan. Allotype in the SMETANA collection, Ottawa, Canada.

Geographical distribution. At present, *Q. feihuensis* is known only from Feihu Dong Cave near Longshan in northwestern Hunan.

Bionomics. The two specimens of the original series were taken from under stones lying on the muddy floor of a large chamber not far from the large entrance, still in a dim light. The cave-dwelling trechine *Cathaiaphaenops delprati* DEUVE, 1996 lives in the same habitat (UÉNO, personal communication).

Recognition and comments. Quedius feihuensis is in all characters, including the shape of the aedoeagus, and the presence of the small patch of denser pubescence in the middle of the male sternite 6, similar to *Q. mnemon* SMETANA, 1995, described from near Beijing (Xiaolongmen), but it differs from it by the larger eyes (ratio length

of tempora : length of eyes in *Q.mnemon*=1.24), by the three basal segments of antenna dark and shorter, and by the in details different aedoeagus (Figs. 26, 27 and figs. 44, 45 in SMETANA, 1995).

The holotype of *Q. mnemon* has only two fine punctures in each of the dorsal rows on the pronotum; however, this may not be characteristic of the species, since some variability in this character seems to be present also in *Q. feihuensis* (see above); *Q. mnemon* may therefore normally have the usual three punctures in each of the dorsal rows.

Although both specimens of *Q. feihuensis* were collected from a cave, I have serious doubts that the species is a true cave-dweller. This is based mainly on the fact that the eyes are relatively large and convex, the appendages rather short (particularly the antennae), and that the species is similar, and obviously closely related, to a free-living species.

Etymology. The specific epithet has been derived from the name of the type locality: Feihu Dong Cave.

Acknowledgments

I thank Dr. Shun-Ichi UÉNO for submitting many of the specimens this paper is dealing with for study, and for providing important information about the habitats of the species, as well as information concerning the caves in which the *Quedius* species were found, including the ground beetle trechine fauna found in these caves.

My colleagues Y. BOUSQUET and A. DAVIES, Agriculture and Agri-Food Canada, Research Branch, Ottawa, reviewed the original draft and provided useful comments. Mr. Go SATO from the same establishment carefully finished the line drawings.

要　　約

A. SMETANA：中国産ツヤムネハネカクシ亜族に関する知見．15．*Strouhalium*属の3およびツヤムネハネカクシ亜属の9．—— 洞窟ないし洞窟に近い環境にすむ種類を中心にして，異常に広い分布域をもつ*Strouhalium gracilicorne*と，ツヤムネハネカクシ亜属の5種について，分類学的ならびに生態学的な記述を行った．REITTERの基準標本が発見された結果，*Quedius lamus* SMETANAは，*Q. przewalskii* REITTERの下位同物異名であることが明らかになった．また，四川省南部，貴州省北西部および湖南省北西部の石灰洞からそれぞれ1新種を記載し，これらに*Q. krali*, *Q. kishimotoi*および*Q. feihuensis*の新名を与えた．

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——— 1997. Ditto. Part 9. Genus *Quedius* STEPHENS, 1829. Subgenus *Microsaurus* DEJEAN, 1833. Section 7. *Ibid.*, **25**: 451–473.

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Elytra, *Tokyo*, **27** (2): 535–551, November 13, 1999

Contributions to the Knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China

Part 16. Genus *Quedius* STEPHENS, 1829. Subgenus *Microsaurus* DEJEAN, 1833. Section 10

Aleš SMETANA

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Abstract Five species of the genus *Quedius*, subgenus *Microsaurus*, from the People's Republic of China are described as new: *Q. myau* (Sichuan), *Q. faang* (Sichuan), *Q. yaoqi* (Sichuan), *Q. koei* (Shaanxi), *Q. songpan* (Sichuan).

Key words: Coleoptera, Staphylinidae, *Quedius*, China, new species.

This is the sixteenth of a series of papers dealing with the Quediina of the People's Republic of China. It presents the descriptions of five new species of the subgenus *Microsaurus* DEJEAN, 1833, some of them collected recently in China by Drs. S.-I. UÉNO, T. KISHIMOTO and Y. NISHIKAWA. All the five species belong to the group of species around *Q. erythras* SMETANA, 1997.

Quedius* (*Microsaurus*) *myau sp. nov.

(Figs. 1–6)

Description. Head piceous-black to black with apical margin narrowly, variably paler; pronotum brownish-piceous to piceous-black, with front and basal margins narrowly and lateral portions variably widely paler, paler coloration not sharply delimited; elytra dark brownish to piceous-black, with suture and apical margin narrowly and lateral portions usually not sharply, variably widely paler, sometimes elytra almost entirely piceous-black with only humeri, suture and apical margin quite narrowly paler; abdomen piceous black with apical margins of tergites to various extent, usually fairly narrowly, paler; elytra with faint, opaque iridescence, abdomen slightly iridescent; maxillary and labial palpi testaceous to rufotestaceous, both with apical segment slightly, partially darkened; antennae testaceous to rufotestaceous, gradually, slightly darkened toward apex; legs rufotestaceous to brunneous, usually with somewhat paler tarsi, medial faces of middle tibiae and hind femora and tibiae distinctly darkened. Head relatively narrow, of rounded quadrangular shape, about as long as wide (but

often appearing, due to narrowing behind eyes, slightly longer than wide), posterior angles obtusely rounded; eyes moderately large and convex, tempora appreciably shorter than eyes seen from above (ratio 0.74); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posteriomedial margin of eye, separated from it by distance appreciably larger than diameter of puncture, two punctures between it and posterior margin of head; temporal puncture situated away from posterior margin of eye, slightly closer to posterior margin of head than to posterior margin of eye, a small additional puncture at margin of eye between it and posterior frontal puncture; tempora with some fine punctures; surface of head with very fine and dense microsculpture of transverse waves. Antenna relatively long, only slightly widened toward apex, segment 3 distinctly longer than segment 2 (ratio 1.48), segments 4–7 longer than wide, gradually becoming shorter, segments 8–10 slightly longer than wide, last segment somewhat shorter than two preceding segments combined. Pronotum vaguely wider than long (ratio 1.05), appearing as long as wide, widest at about middle, about equally, almost arcuately, narrowed both anteriad and posteriad, with lateral margins continuously arcuate with broadly arcuate base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated at variable distance behind level of large lateral puncture; microsculpture similar to that on head, but finer and denser. Scutellum impunctate, with fine and dense microsculpture of transverse waves. Elytra relatively long, at base narrower than pronotum at widest point, slightly widened posteriad, at suture slightly (ratio 1.12), at sides distinctly longer (ratio 1.26) than pronotum at midline; punctation and pale testaceous pubescence fine and moderately dense, transverse interspaces between punctures mostly about twice as large as diameters of punctures; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) with fine apical seam of palisade fringe; punctation and pubescence of abdominal tergites fine and relatively sparse, more or less evenly covering each tergite, in general becoming indistinctly sparser toward apex of abdomen; pubescence pale testaceous; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 markedly wider than apex of tibia (ratio 1.30); segment 4 narrower than preceding segments. Sternite 8 with three or four long setae on each side, with inconspicuous, shallow, almost arcuate medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 1). Genital segment with tergite 10 triangular, narrowly arcuate apically, with numerous setae at and near apical margin (Fig. 2); sternite 9 with basal portion short, apical portion broadly arcuate apically, wih fine setae medio-apically, and with two slightly differentiated subapical setae (Fig. 3). Aedoeagus (Figs. 4–6) narrow and elongate; median lobe slightly constricted around middle, anteriorly narrowed into a rather acute apex, with fine, short medial carina on face adjacent to paramere. Paramere elongate, narrow, not quite reaching apex of median lobe, with apex minutely

notched; two minute setae at each side of apical notch, two somewhat stronger setae at each lateral margin far from apex; underside of paramere with two longitudinally arranged sensory peg setae at each lateral margin close to apex. Internal sac without larger sclerotized structures.

Female unknown.

Length 6.8–7.5 mm.

Type material. Holotype (male): China: "CHINA: Sichuan Gongga Shan, Hailuogou, in front of Glacier 1, 2850 m 29°35 N 102°00 E, 7. VII. 1998, A. Smetana [C76]"/"1998 China Expedition J. Farkač, D. Král, J. Schneider & A. Smetana". In the SMETANA collection, Ottawa, Canada.

Paratypes: China: [Sichuan]: same data as holotype, 1♂, in the SMETANA collection; "W-Sichuan (15) Daxue Shan, Hailuogou Glacier Park, Camp 2, 2550–2700 m, 29.35.16 N 102.01.53 E 30./31.05.1997, M. Schülke", 9♂♂, in the SCHÜLKE collection, Berlin, Germany, and in the SMETANA collection; "Daxue Shan, Gongga Shan Mt., Hailuogou glacier park 102.04 E, 29.36 N, river valley ca. 1 km above Camp I, 2100 m, 28./31.V.1997, leg A. PÜTZ", 2♂♂, in the PÜTZ collection, Eisenhüttenstadt, Germany; same, "way from Camp II to Camp I, 2620–1940 m, 31.V.1997, leg. A. PÜTZ", 4♂♂, in the PÜTZ and SMETANA collections; "W Sichuan (13) Daxue Shan, Hailuogou Glacier Park (Gongga Shan), Camp 1, 2100 m 29.36 N/102.04 E 27./28./31.V. '97 Wrase", 13♂♂, in the PÜTZ and SMETANA collections, and in the collection of the National Science Museum, Tokyo, Japan; "Xiling Mt. 1600–2400 litter 30.07– 4.08. 96 leg. S. Kurbatov", 1♂ in the collection of the Muséum d'Histoire naturelle, Geneva, Switzerland.

Geographical distribution. *Quedius myau* is at present known mainly from the massive of Gongga Shan in western Sichuan, where it occurs at lower elevations below 3,000 m. The locality "Xiling Mt." lies about 80 km to the west of Chengdu in central Sichuan, therefore the species may be widely distributed at lower elevations on various mountain ranges in Sichuan.

Bionomics. In the Gongga Shan massive, *Q. myau* occurs mainly at lower elevations (highest record is 2,850 m) in the deciduous forest zone. The holotype and the paratype from near the Glacier 1 were taken by sifting leaf litter and other debris under *Salix* bushes near the river.

Recognition and comments. *Quedius myau* may be easily recognized among the species related to *Q. euryalus*, in addition to the sexual characters, by the relatively small eyes, by the temporal puncture situated closer to the posterior margin of the head than to the posterior margin of the eye, by the long antennae, the relatively long elytra, and by the rather sparsely punctate abdominal tergites.

It is unusual that all specimens of the original series are males. The females of the species may therefore live more secretively in a different habitat and may even display sexual dimorphism in external characters. But even if the latter were true, the possibility that they were mismatched with males of other species of the group, occurring in Sichuan, is not likely. The females of all these species are by now known and are believed to be positively matched with males.

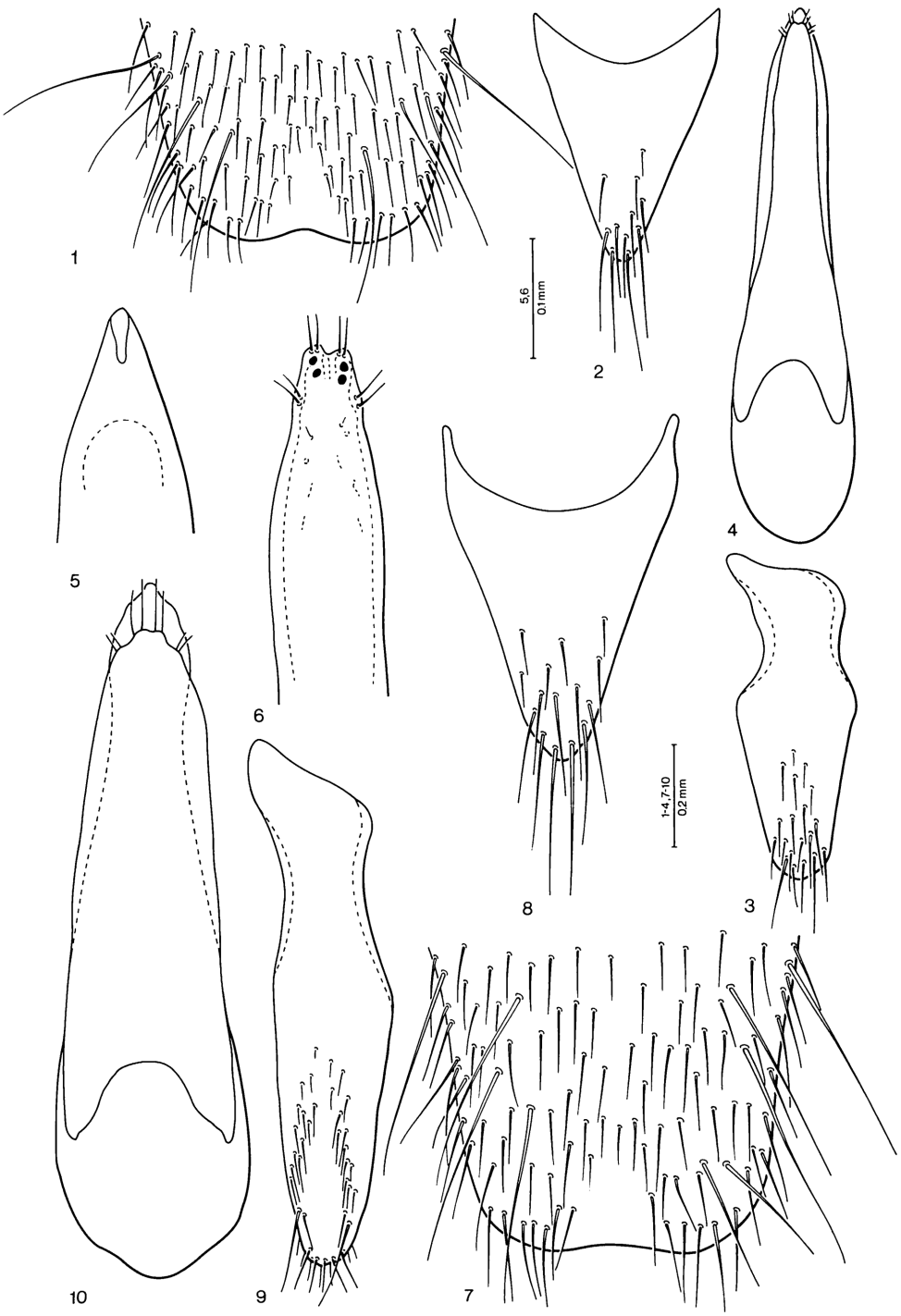
Etymology. The specific epithet is the Chinese word "myau" which in one of its meanings denotes "slender and graceful in stature". It refers to the general appearance of this species.

Quedius (*Microsaurus*) *faang* sp. nov.

(Figs. 7–12)

Description. Head piceous-black, pronotum piceous with lateral margins narrowly and indistinctly paler (holotype), or more distinctly paler (allotype), elytra dark brownish, abdomen piceous, apical margins of tergites and apex of abdomen indistinctly paler; abdomen markedly iridescent; maxillary and labial palpi rufotestaceous, antennae pale rufous, legs dark brown with paler tarsi, medial faces of all tibiae (less distinctly on front tibiae) darkened. Head rounded, wider than long (ratio 1.16), posterior angles entirely rounded; eyes very large and convex, protruding from lateral contours of head, tempora considerably shorter than eyes seen from above (ratio 0.31); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated quite close to posteriomedial margin of eye, separated from it by distance about equal to diameter of puncture, two punctures between it and posterior margin of head; temporal puncture situated slightly closer to posterior margin of eyes than to posterior margin of head; small additional puncture at margin of eye between it and posterior frontal puncture; tempora with a few fine punctures; surface of head with very fine and dense microsculpture of transverse waves. Antenna slender, vaguely widened toward apex, segment 3 markedly longer than segment 2 (ratio 1.42), segments 4–7 distinctly longer than wide, gradually becoming shorter, segments 8–10 slightly longer than wide, last segment somewhat shorter than two preceding segments combined. Pronotum as long as wide, almost parallel-sided in middle section, slightly narrowed anteriad, lateral margins continuously arcuate with broadly arcuate base, transversely convex, lateral margins not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated distinctly behind level of large lateral puncture; microsculpture similar to that on head, but still finer and denser. Scutellum impunctate, with very fine and dense microsculpture of transverse striae. Elytra moderately long, at base narrower than pronotum at widest point, hardly widened posteriad, at sides about as long as, at suture vaguely shorter than pronotum at midline (ratio 0.88); punctation and pubescence moderately fine and dense, transverse interspaces between punctures mostly almost twice as large as diameters of punctures; pubescence piceous; surface between punctures without mi-

Figs. 1–10. —— 1–6. *Quedius myau*: 1, apical portion of male sternite 8; 2, tergite 10 of male genital segment; 3, sternite 9 of male genital segment; 4, aedoeagus, ventral view; 5, apical portion of median lobe of aedoeagus, ventral view; 6, apical portion of underside of paramere. —— 7–10. *Quedius faang*: 7, apical portion of male sternite 8; 8, tergite 10 of male genital segment; 9, sternite 9 of male genital segment; 10, aedoeagus, ventral view.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crosculpture. Wings well developed but probably non-functional. Abdomen with tergite 7 (fifth visible) with whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites similar to that on elytra, but finer, almost evenly covering each tergite, becoming in general slightly sparser toward apex of abdomen; pubescence piceous; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus strongly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 wider than apex of tibia (ratio 1.21); segment 4 narrower than preceding segments. Sternite 8 with five long setae on each side; with very shallow, inconspicuous, subarcuate medioapical emargination, small triangular area before emargination flattened and smooth (Fig. 7). Genital segment with tergite 10 triangular, markedly, evenly narrowed toward narrowly arcuate apex, with two weakly differentiated apical setae and some additional weaker setae on apical portion (Fig. 8); sternite 9 with short basal portion, rather narrowly subarcuate apically, with two subapical setae and setation characteristically arranged into two longitudinal groups (Fig. 9). Aedoeagus (Figs. 10, 11) rather large, elongate; median lobe gradually, markedly constricted at about apical fourth, apical portion tapered into subacute apex and with minute tooth on face adjacent to paramere. Paramere very large and particularly wide, covering most of median lobe, far from reaching apex of median lobe; gradually narrowed anteriad to close to apex and then biangulately tapered toward minutely emarginate apex; two fine setae at apex on each side of medioapical emargination, two similar setae at each lateral margin below apex; underside of paramere with five sensory peg setae forming transverse group with two and three setae on each side of midline. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but scarcely narrower; segment 2 only slightly narrower than apex of tibia (ratio 1.12). Genital segment with tergite 10 in general wide and short, pigmented medioapically; tapered into indistinctly differentiated, short subacute apex; with fine strong setae on apical portion and with additional, shorter setae in front of them (Fig. 12).

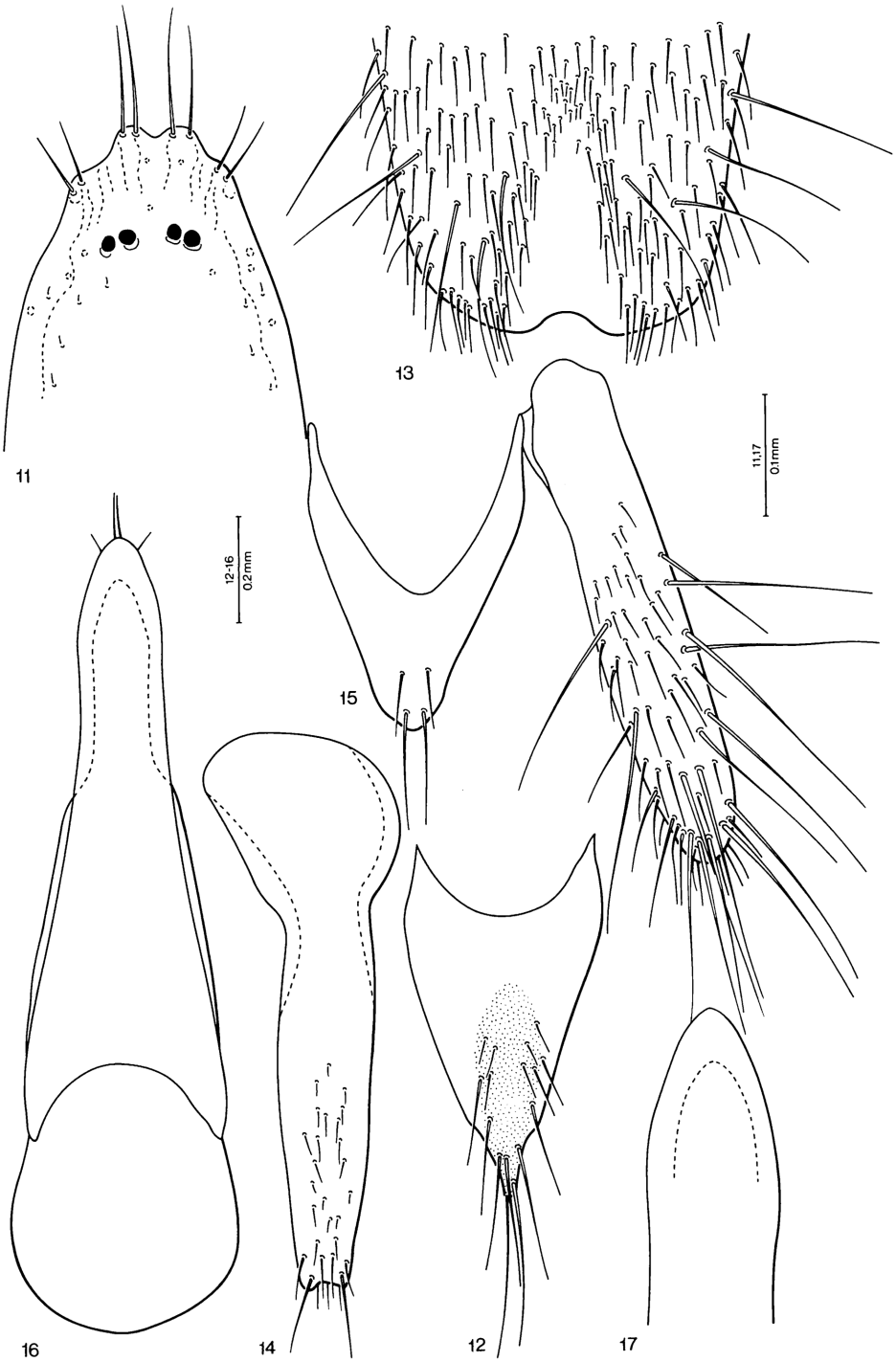
Length 7.6–7.9 mm.

Type material. Holotype (male): China: "[CHINA] Sichuan Pv. Meigu Xian, Wahei, Dafengding (2320 m) 6. X. 1997 T. Kishimoto leg." In the collection of the National Science Museum, Tokyo, Japan.

Allotype (female): China: same data as holotype, but Y. NISHIKAWA leg. In the SMETANA collection, Ottawa, Canada.

Geographical distribution. *Quedius faang* is at present known only from the type locality in southern Sichuan.

Figs. 11–17. —— 11–12. *Quedius faang*: 11, apical portion of underside of paramere; 12, tergite 10 of female genital segment. —— 13–17. *Quedius yaoqi*: 13, apical portion of male sternite 8; 14, sternite 9 of male genital segment; 15, tergite 10 of male genital segment and stylus of tergite 9; 16, aedoeagus, ventral view; 17, apical portion of median lobe of aedoeagus, ventral view.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Bionomics. The specimens of the original series were taken by sifting dead leaves and mosses accumulated or growing along a narrow stream that flowed through a deciduous broadleaved forest just below the *Abies* zone.

Recognition and comments. Quedius faang is similar to *Quedius euryalus* SMETANA, 1997, with which it shares the similar arrangement of the setation of sternite 9 of the male genital segment (Fig. 9 and fig. 3 in SMETANA, 1997). However, it differs, in addition to the slightly smaller size, by the finer and sparser punctation of the elytra and of the abdominal tergites, by the male sexual characters, particularly by the aedoeagus with quite wide paramere with different apical portion that distinctly does not reach apex of median lobe, and by the different shape of the apical portion of the median lobe (Figs. 10, 11 and figs. 4–6 in SMETANA, 1997). Tergite 10 of female genital segment is also differently shaped in both species (Fig. 12 and fig. 7 in SMETANA, 1997).

Etymology. The specific epithet is the Chinese verb "faang" which means "to resemble". It refers to the similarity of *Q. faang* to *Q. euryalus*.

Quedius* (*Microsaurus*) *yaoqi sp. nov.

(Figs. 13–19)

Description. Head piceous-black, pronotum dark brown with anterior and posterior margins narrowly, and lateral margins widely, testaceorufous, or entirely testaceorufous (allotype), elytra rufobrunneous to testaceorufous (allotype), abdomen piceobrunneous with indefinitely paler apical margins of tergites and apex, or entirely rufobrunneous (allotype); abdomen markedly iridescent; maxillary and labial palpi testaceous, antennae rufotestaceous, legs rufobrunneous with somewhat paler tarsi, medial faces of all tibiae, but particularly those of middle and hind tibiae, distinctly blackened. Head rounded, somewhat wider than long (ratio 1.22), posterior angles entirely rounded; eyes large and convex, tempora considerably shorter than eyes seen from above (ratio 0.47); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posteriomedial margin of eye, separated from it by distance about as large as diameter of puncture (posterior frontal puncture is doubled on left side in paratype), two punctures between it and posterior margin of head; temporal puncture situated close to posterior margin of eye, separated from it by distance hardly larger than diameter of puncture, small additional puncture at posterior margin of eye between it and posterior frontal puncture; tempora with a few fine punctures; surface of head with very fine, superficial and rather dense microsculpture of transverse waves (microsculpture partially rudimentary in holotype). Antenna moderately long, hardly widened toward apex, segment 3 longer than segment 2 (ratio 1.40), segments 4–7 longer than wide, gradually becoming shorter, segments 8–10 slightly longer than wide, last segment somewhat shorter than two preceding segments combined. Pronotum vaguely wider than long (ratio 1.06), widest at about posterior third, slightly narrowed anteriad, with lateral margins continuously arcuate with widely

rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated behind level of large lateral puncture; microsculpture very fine and extremely dense, considerably finer and denser than that on head. Scutellum impunctate, with very fine and dense microsculpture of transverse waves. Elytra rather short, at base narrower than pronotum at widest point, hardly widened posteriad, at suture somewhat shorter (ratio 0.89), at sides about as long as pronotum at midline; punctation and pubescence moderately dense and fine, transverse interspaces between punctures mostly somewhat less than twice as large as diameters of punctures; pubescence brownish; surface between punctures without microsculpture. Wings folded once under elytra, almost certainly non-functional. Abdomen with tergite 7 (fifth visible) with fine whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites markedly finer than that on elytra, moderately dense, almost evenly covering each tergite, gradually becoming slightly sparser toward apex of abdomen; pubescence brownish; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 markedly wider than apex of tibia (ratio 1.28); segment 4 narrower than preceding segments. Sternite 8 (Fig. 13) with five long setae on each side, with shallow, inconspicuous medioapical emargination, extensive triangular area before emargination flattened and smooth; general setation fine and short, rather sparse, setae gradually becoming minute toward base of sternite. Genital segment with styli of tergite 9 flattened and rather wide (Fig. 15); tergite 10 of characteristic shape, very short, deeply emarginate basally, arcuate apically, with a few setae near apex (Fig. 15); sternite 9 very narrow and elongate, with short, rather large basal portion, sub-emarginate apically, with a few unequally long setae near apex and in front of them, with extremely small, minute setae medially (Fig. 14). Aedoeagus (Figs. 16–18) of quite characteristic shape; median lobe in about apical fourth rather abruptly narrowed into rod-like apical portion with narrowly arcuate apex. Paramere very large and wide, particularly its basal portion, covering almost entire median lobe, subparallel-sided in middle portion, with narrowly arcuate apex distinctly exceeding apex of median lobe; four setae at apex, middle pair considerably longer and stronger than fine lateral pair, two very fine setae at each lateral margin considerably below apex; sensory peg setae on underside of paramere forming a round medial group far below apex of paramere. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but distinctly less dilated; segment 2 hardly wider than apex of tibia (ratio 1.08). Genital segment with tergite 10 of characteristic shape, narrowly pigmented medioapically, with single long seta at subacute apex (Fig. 19).

Length 7.2–7.4 mm.

Type material. Holotype (male): China: "(CHINA) Sichuan Pv., Baoxing Xian,

Yaoqi / Mahuanggou (2650 m) 2. X. 1997 Y. Nishikawa leg." In the collection of the National Science Museum (Natural History), Tokyo, Japan.

Allotype (female): China: [Sichuan]: "(CHINA) Sichuan Pv., Baoxing Xian, Yaoqi / Baiyu-shan (2580 m) 1.X. 1997 S. Uéno leg." In the collection of the National Science Museum (Natural History), Tokyo, Japan.

Paratype (male): China: [Sichuan]: same data as holotype, but T. KISHIMOTO leg. In the SMETANA collection, Ottawa, Canada.

Bionomics. The Baiyu-shan specimens were taken by sifting dead bamboo leaves accumulated on the wet bank of a narrow muddy gully covered with deciduous broadleaved trees and bamboos. The holotype from Mahuanggou was also sifted out from a heap of dead bamboo leaves, but at this collecting site, deciduous broadleaved trees were much taller and the bamboo undergrowth was dwarf.

Recognition and comments. *Quedius yaoqi* is quite distinctive among all habitually similar species around *Q. erythras* by the shape of the sclerites of the male genital segment, including the wide styli of tergite 9, the characteristic tergite 10 of the female genital segment with one strong apical seta (Figs. 14, 15, 19), and particularly by the unique shape of the aedoeagus and location of the sensory peg setae on the underside of the paramere (Figs. 16, 18).

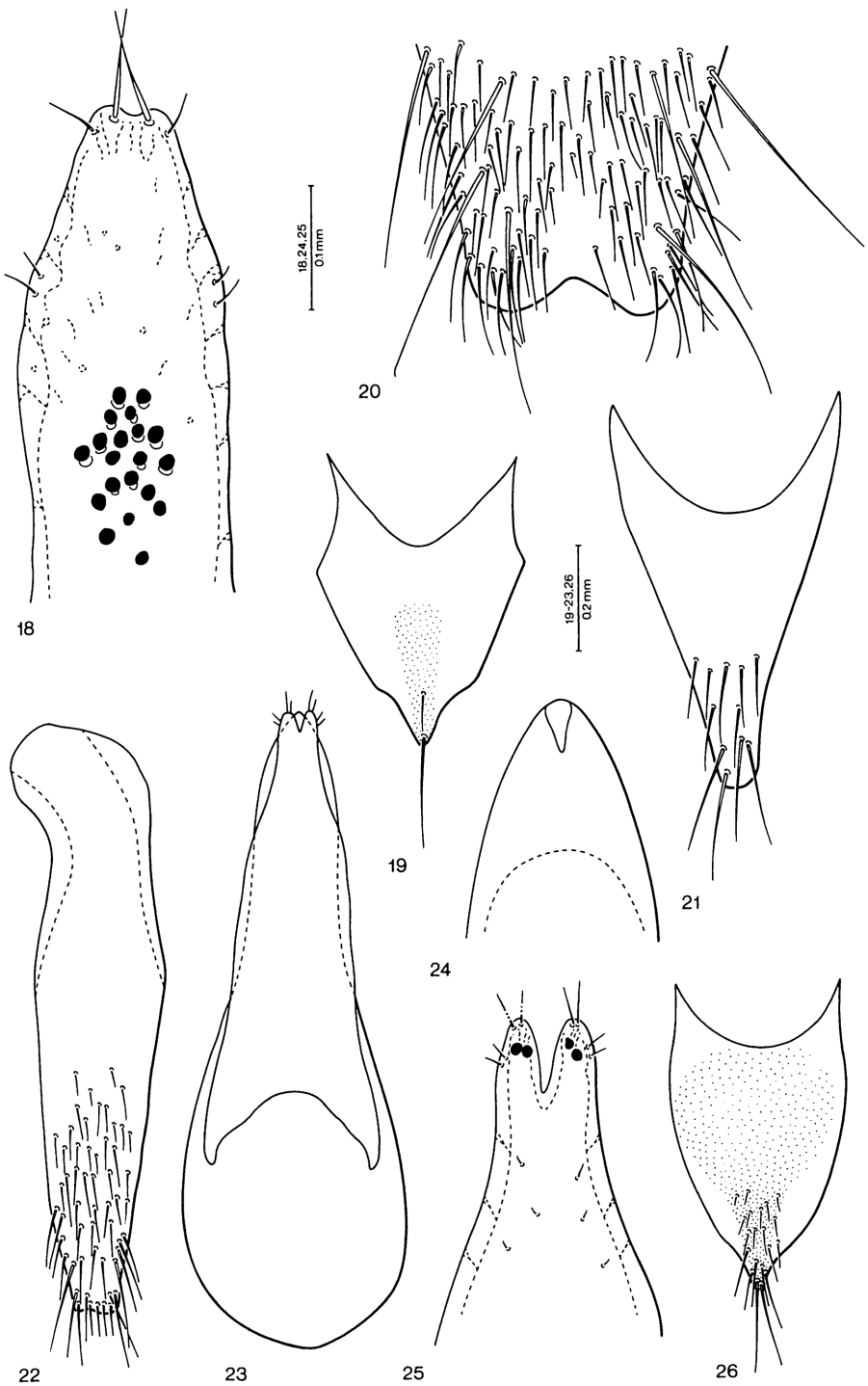
Etymology. The specific epithet is one part of the Chinese name of the type locality of the species, in apposition.

Quedius* (*Microsaurus*) *koei sp. nov.

(Figs. 20–26)

Description. Head black, pronotum piceous-black with all margins rufotestaceous, lateral ones more widely so, elytra testaceo-brunneous to brunneous, abdomen piceous-black with apical margins of tergites slightly, narrowly paler (not so in one paratype), abdomen markedly iridescent; maxillary and labial palpi testaceous, antennae rufotestaceous, legs brunneous with slightly paler tarsi, medial faces of all tibiae, particularly those of middle and hind tibiae, distinctly blackened. Head rounded, slightly wider than long (ratio 1.21), posterior angles entirely obsolete; eyes large and convex, tempora considerably shorter than eyes seen from above (ratio 0.45); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posteriomedial margin of eye, separated from it by distance no more than slightly larger than diameter of puncture, two punctures between it and posterior margin of head; temporal puncture situated slightly closer to posterior margin of eye than to posterior margin of head, a small additional puncture at margin of eye be-

Figs. 18–26. —— 18–19. *Quedius yaoqi*: 18, apical portion of underside of paramere; 19, tergite 10 of female genital segment. —— 20–26. *Quedius koei*: 20, apical portion of male sternite 8; 21, tergite 10 of male genital segment; 22, sternite 9 of male genital segment; 23, aedoeagus, ventral view; 24, apical portion of median lobe of aedoeagus, ventral view; 25, apical portion of underside of paramere; 26, tergite 10 of female genital segment.


18,24,25
0.1mm
19-23,26
0.2mm
18
19
20
21
22
23
24
25
26

tween it and posterior frontal puncture; tempora with a few fine punctures; surface of head with fine and dense microsculpture of transverse waves, with intermixed, sparse micropunctulation. Antenna moderately long, vaguely widened anteriad, segment 3 vaguely longer than segment 2 (ratio 1.10), segments 4–7 longer than wide, gradually becoming shorter, segments 8–10 vaguely longer than wide, last segment somewhat shorter than two preceding segments combined. Pronotum vaguely wider than long (ratio 1.12), widest at about posterior third, slightly narrowed anteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portion not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated distinctly behind level of large lateral puncture; microsculpture similar to that on head but finer and denser. Scutellum impunctate, with very fine and dense microsculpture of transverse waves. Elytra rather short, at base narrower than pronotum at widest point, vaguely widened posteriad, at suture somewhat shorter (ratio 0.91), at sides about as long as pronotum at midline; punctation and pubescence moderately fine and dense, transverse interspaces between punctures mostly about 1.5 times as large as diameters of punctures; pubescence brownish; surface between punctures without microsculpture. Wings folded once under elytra, almost certainly non-functional. Abdomen with tergite 7 (fifth visible) with fine whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites slightly finer and denser than that of elytra, almost evenly covering each tergite, gradually becoming somewhat sparser toward apex of abdomen; pubescence brownish-piceous; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 wider that apex of tibia (ratio 1.20); segment 4 narrower than preceding segments. Sternite 8 with four long setae on each side, with rather wide and deep, obtusely triangular medioapical emargination, small area before emargination flattened and smooth (Fig. 20). Genital segment with tergite 10 rather long, markedly narrowed toward obtusely arcuate apex, with numerous setae on apical portion (Fig. 21); sternite 9 narrow, elongate, with small basal portion, with subtruncate-emarginate apex, with two vaguely differentiated subapical setae (Fig. 22). Aedoeagus (Figs. 23–25) large; median lobe subparallel-sided in middle portion, anteriorly arcuately attenuate into narrowly arcuate apex, with fine medioapical carina on face adjacent to paramere. Paramere large, almost entirely covering median lobe, about reaching apex of median lobe, anteriorly concavely narrowed into deeply emarginate apex; four fine setae at apex (both missing on one side in holotype), two somewhat shorter setae at each lateral margin below apex; underside of paramere with two sensory peg setae on each side of medioapical emargination below apex. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but less dilated; segment 2 about as wide as apex of tibia. Genital segment with tergite 10 extensively pigmented, anteriorly narrowed into short, narrowly rounded apex, with two

slightly differentiated apical setae and numerous setae in front of them (Fig. 26).

Length 7.5–7.8 mm.

Type material. Holotype (male): China: "CHINA (Shaanxi) Qin Ling Shan / 108.47 E 33.51N / Mt. W pass autoroute km 70, 47 km S Xian 2500–2600 m 26–29. VIII. 1995 Wrase". In the SCHÜLKE collection, Berlin, Germany.

Allotype (female): [Shaanxi]: same data as holotype, but 2300–2500 m, sifted, 26.–30. 08. 1995. leg. A. PÜTZ. In the SMETANA collection, Ottawa, Canada.

Paratypes: China: [Shaanxi]: 2♀♀, same data as allotype, but 2500–2600 m, 26.–27. 08. 1995. In the SMETANA collection and PÜTZ collection, Eisenhüttenstadt, Germany (to be eventually deposited in the Deutsches Entomologisches Institut, Eberswalde).

Geographical distribution. *Quedius koei* is at present known only from the type locality in Qin Ling Shan in southern Shaanxi.

Bionomics. No details are known about the collection circumstances, except that some specimens of the original series were sifted, very likely from the forest floor litter.

Recognition and comments. *Quedius koei* is in all external characters similar to *Q. erythras*, but it differs by the paler coloration of the pronotum and elytra and some further details, in addition to the sexual differences. The aedoeagus of *Q. koei* resembles that of *Q. euryalus*, but the latter species differs distinctly by the different medioapical emargination on male abdominal sternite 8 and by the different sclerites of both male and female genital segments (Figs. 20–26, and figs. 1–7 in SMETANA, 1997); in addition, *Q. euryalus* is distinctly larger.

The right antenna of the holotype is missing, except for three basal segments.

Etymology. The specific epithet is the Chinese noun "koei" (a puppet) in apposition.

Quedius* (*Microsaurus*) *songpan sp. nov.

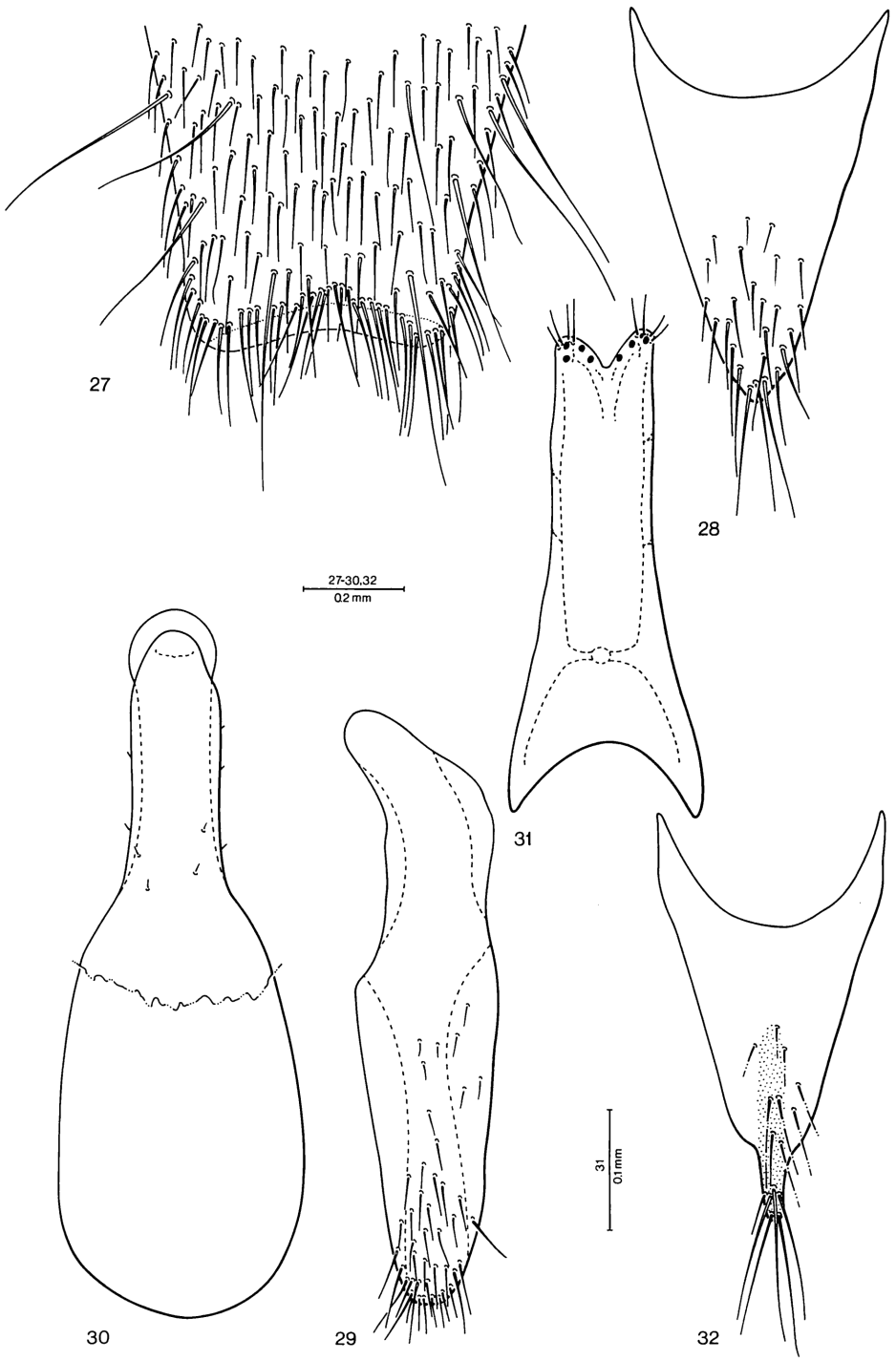
(Figs. 27–32)

Description. Head black, pronotum rufopiceous to piceous-black with anterior and posterior margins narrowly and lateral margins variably widely paler, elytra piceous to piceous-black with suture and apical margin very narrowly paler, or elytra almost entirely reddish-brown, abdomen piceous with apical margins of tergites and apex slightly paler; elytra with faint, opaque iridescence, abdomen iridescent; maxillary and labial palpi testaceous, antennae rufotestaceous, legs rufobrunneous to dark brunneous with slightly paler tarsi, medial faces of all tibiae distinctly blackened, less distinctly so on front tibiae. Head rounded, somewhat wider than long (ratio 1.14), posterior angles entirely obsolete; eyes large and convex, tempora considerably shorter than eyes seen from above (ratio 0.43); no additional setiferous punctures between anterior frontal punctures; posterior puncture situated close to posteriomedial margin of eye, separated from it by distance slightly larger than diameter of puncture, two punc-

tures between it and posterior margin of head; temporal puncture situated slightly closer to posterior margin of eye than to posterior margin of head, a small additional puncture at margin of eye between it and posterior frontal puncture; tempora with a few fine punctures; surface of head with fine and dense microsculpture of transverse waves. Antenna moderately long, only vaguely widened anteriad, segment 3 slightly longer than segment 2 (ratio 1.20), segments 4 to 7 longer than wide, gradually becoming shorter, segments 8–10 almost, or as wide as long, last segment about as long as two preceding segments combined. Pronotum about as long as wide, widest at about posterior third, slightly narrowed anteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated distinctly behind level of large lateral puncture; microsculpture similar to that on head, but denser and somewhat finer. Scutellum impunctate, with fine and dense microsculpture of transverse waves. Elytra rather short, at base narrower than pronotum at widest point, vaguely widened posteriad, at suture about as long as, at sides vaguely longer (ratio 1.1) than pronotum at midline; punctation and pubescence fine and moderately dense, transverse interspaces between punctures mostly about 1.5 as large as diameters of punctures; pubescence piceous-brown; surface between punctures without microsculpture, but with some microscopical irregularities, particularly near posterior margin. Wings folded once under elytra, almost certainly non-functional. Abdomen with tergite 7 (fifth visible) with fine whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites finer and somewhat denser than that on elytra, becoming slightly sparser toward apex of each tergite and in general toward apex of abdomen; pubescence piceous-brown; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 somewhat wider than apex of tibia (ratio 1.13); segment 4 narrower than preceding segments. Sternite 8 with four to six long setae on each side, with quite characteristic, wide and moderately deep subarcuate emargination margined by membraneous seam, without flattened and asetose medioapical area (Fig. 27). Genital segment with tergite 10 markedly narrowed toward subacute apex, with three indistinctly differentiated subapical setae (Fig.28); sternite 9 with rather long basal portion, obtusely rounded apically, without differentiated apical or subapical setae (Fig. 29). Aedoeagus (Figs. 30, 31) large, with voluminous basal bulbus; median lobe subparallel-sided in middle portion, anteriorly rather suddenly dilated into broadly rounded, spoon-like apex. Paramere large, apparently covering most of median lobe but not quite reaching apex of median lobe (see *Comments* below), subparallel-sided with apex deeply emarginate; four fine setae at each side of

Figs. 27–32. —— *Quedius songpan*: 27, apical portion of male sternite 8; 28, tergite 10 of male genital segment; 29, sternite 9 of male genital segment; 30, aedoeagus, ventral view; 31, underside of paramere; 32, tergite 10 of female genital segment.


27
28
27-30,32
0.2 mm
31
30
29
31
0.1 mm
32

apical emargination, lateral pairs finer than medial ones; underside of paramere with four apical sensory peg setae at each side of emargination. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but less dilated; segment 2 about as wide as apex of tibia. Genital segment with tergite 10 relatively narrow, narrowly pigmented medioapically, rather abruptly narrowed into differentiated, rod-like apical portion with several long setae (Fig. 32).

Length 7.9–8.1 mm.

Type material. Holotype (male) and allotype (female): China: "CHINE province de Sinchuan région de SONGPAN 3250 m Lacs ERDAO M. TRONQUET 04/08/94". In the SMETANA collection, Ottawa, Canada.

Paratype: China [Sichuan]: same data as holotype, but 3050 m ZHAGA FALL 05/08/94, 1 ♀, in the SMETANA collection.

Geographical distribution. *Quedius songpan* is at present known only from the type locality in northern Sichuan.

Bionomics. Nothing is known about the habitat requirements of this species.

Recognition and comments. *Quedius songpan* is in external characters similar to *Q. erythras*, but it differs from it, as well as from all other similar species of the group, by the unique male abdominal sternite 8 with distinct, membranous apical seam (Fig. 27), and by the distinctive shape of the apical portion of the median lobe of the aedoeagus (Fig. 30).

The holotype of the species was received dissected, with the paramere removed and with the median lobe broken in two pieces. The illustrations of the aedoeagus reflect this condition; the median lobe was reconstructed from the two pieces and the break line is shown. For this reason, the proper relations between the apical portions of the median lobe and the paramere cannot be precisely defined and the data given in the description are just guesses.

One female specimen, with the same locality data as those of the female paratype, differs somewhat from the specimens of the original series by the wider head and shorter elytra with surface between the punctures bearing distinct microscopical irregularities and therefore appearing somewhat dull. The genital segment of this specimen does not appreciably differ from that of the allotype; nevertheless, this specimen was associated with *Q. songpan* only tentatively and is not part of the original series.

Etymology. The specific epithet is a part of the name of the type locality in apposition.

Acknowledgments

I thank Dr. S.-I. UÉNO (Tokyo), Mr. A. PÜTZ (Eisenhüttenstadt) and M. SCHÜLKE, (Berlin), Germany, and Mr. M. TRONQUET, Molitg les Bains, France, for providing me with the material this paper is dealing with, and for allowing me to keep representative specimens in my collection. My colleagues D. E. BRIGHT and A. DAVIES, Agriculture

and Agri-Food Canada, Research Branch, Ottawa, commented on the original draft of the manuscript. Mr. Go SATO from the same establishment carefully finished the line drawings.

要　約

A. SMETANA：中国産ツヤムネハネカクシ亜族に関する知見．16．ツヤムネハネカクシ属*Microsaurus*亜属の10．—— 中国の四川省および陝西省から，*Microsaurus*亜属のツヤムネハネカクシの5新種を記載し，それらに*Q. myau*, *Q. faang*, *Q. yaoqi*, *Q. koei*および*Q. songpan*の新名を与えた．いずれも*Q. erythras*と同じ系列のものだと考えられる．

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Elytra, *Tokyo*, **27** (2): 551–552, November 13, 1999

A New Type of Sexual Dimorphism in the Silphinae (Coleoptera, Silphidae)

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It is fundamentally important for identification of beetles to determine if a given specimen of a certain species is a male or a female. In silphine beetles, some external characters have already been known to show sexual dimorphism, that is, shape of the elytral apices, basal segments of the fore tarsi, emargination of the apical sternite of abdomen and excurvature of the hind tibiae. Since they are more or less subtle, however, sexual dimorphism in other parts of their body has been searched for to make accurate determination of the sex.

In the course of my study on geographical variation of *Silpha longicornis* PORTEVIN, a silphine beetle endemic to Japan, I became aware of previously unknown sexual dimorphism in terminal structure of the hind tibiae; in the male, the inner angle is distinctly produced in dorsal view, tuberculate in inner lateral view, and glabrous at the round apex of the projection, though the inner apical portion of each hind tibia is densely setiferous, whereas they are simple in the female. Shape of the projection is variable according to local populations.

I have searched for similar dimorphism in other silphine specimens of my collection, and found three types of terminal structure in the male hind tibiae, as summarized below:

1) Inner angle is distinctly projected with the inner apical portion densely setiferous: *Dendroxena sexcarinata* MOTSCHULSKY; *Diamesus osculans* (VIGORS); *Necrodes littoralis* (LINNAEUS); *N. nigricornis* HAROLD; *N. surinamensis* (FABRICIUS); *Silpha longicornis* PORTEVIN.

2) Inner angle is simple with the inner apical portion densely setiferous: *Aclypea opaca* (LINNAEUS); *Chrysosilpha formosa* (CASTELNAU)*; *C. viridis* (MOTSCHULSKY)*; *Eusilpha japonica* (MOTSCHULSKY); *E.* (*Calosilpha*) *bicolor* (FAIRMAIRE); *E.* (*C.*) *brunnicollis* (KRAATZ); *E.* (*C.*) *cyaniventris* (MOTSCHULSKY); *Oiceoptoma inaequale* (FABRICIUS)*; *O. nigropunctatum* (LEWIS)*; *Oxelytrum discicollis* (BRULLÉ); *Silpha perforata venatoria* HAROLD. (*Not so densely setiferous in these species.)

3) Inner angle and inner apical portion are almost the same as in the female: *Chrysosilpha runatae* (PORTEVIN); *Eusilpha jakowlewi* SEMENOW; *Necrophila americana* (LINNAEUS); *Oiceoptoma subrufum* (LEWIS); *O. thoracicum* (LINNAEUS); *Phosphuga atrata* (LINNAEUS); *Thanatophilus lapponicus* (HERBST); *T. sinuatus* (FABRICIUS).

The present observation suggests that the terminal structure of the hind tibiae may furnish a secondary sexual character in many species of silphines, though it does not appear in some species. If the modification occurs, it is almost uniform in congeneric species. Behavioral function is unknown of the projection and the dense setiferous field, though they are probably related to mating, as was speculated by TANAKA (1986) on the modification of the male hind trochanters of several endomychid beetles and was referred by HANSEN (1997) to the relation between the mating and modification of legs in the Staphyliniformia. Further observation is needed for confirming this.

In closing the present brief note, I wish to express my hearty thanks to Dr. Shun-Ichi UÉNO, Emeritus Curator of the National Science Museum (Nat. Hist.), Tokyo, for his kindness in critically reading the original manuscript.

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Elytra, *Tokyo*, **27** (2): 553–571, November 13, 1999

Studies on the Asian Staphylininae (Coleoptera, Staphylinidae)

IV. Revisional Notes on the Genera *Rhyncocheilus* FAUVEL and *Rhynchocheilus* SHARP, with Redescriptions of their Type Species

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Abstract Characteristics of the genera *Rhyncocheilus* FAUVEL and *Rhynchocheilus* SHARP are reviewed, and their type species, *Staphylinus aureus* FABRICIUS and *Rhynchocheilus pectoralis* SHARP, are redescribed.

Rhyncocheilus was firstly introduced (published) by FAUVEL in 1882 without description as an unpublished generic name for *Staphylinus aureus* FABRICIUS. SHARP (1889) established the genus *Rhynchocheilus* for *Rhynchocheilus pectoralis* SHARP, though he did not give any comment on *Rhyncocheilus* FAUVEL. Thereafter, most researchers of the Staphylinidae, even FAUVEL himself, treated the former as an invalid name and/or a junior synonym of the latter. CAMERON (1932) may be the first and the only one researcher who redescribed the genus *Rhynchocheilus* (spelled as *Rhyncochilus*) after SHARP in his sense. On the other hand, BLACKWELDER (1952) recognized *Rhyncocheilus* FAUVEL as an acceptable name and regarded *Rhynchocheilus* SHARP as a junior synonym of the former. His arrangement seems reasonable under the present nomenclature, but COIFFAIT (1982) still considered *Rhynchocheilus* SHARP to be an available name.

Recently, I had an opportunity to closely examine the type specimen of *Staphylinus aureus* FABRICIUS with some additional specimens and the type specimens of *Rhynchocheilus pectoralis* SHARP. After a careful examination of these type specimens and several additional ones, it has become clear that the two genera are clearly different. Therefore I am going to redescribe these genera on the basis of close reexamination of the type specimens, and to discuss their phylogenetic relationships.

"*Rhyncocheilus*" may be a miss-spelling of "*Rhynchocheilus*", but both are correct original spellings according to the present Code of Zoological Nomenclature. These names are, however, very similar to each other, and confusing; it has been often miss-spelled as *Rhyncochilus* or *Rhynchochilus*. Such confusions are inevitable so far as the two names are available. It is therefore desirable that a new substitute name will be proposed for *Rhynchocheilus* under the plenary power of the Commision of Zoological Nomenclature.

Before going into further details, I wish to express my hearty thanks to Mr. M. J. D. BRENDELL of the Natural History Museum, London, for his courtesy and generosity to loan me the precious materials, the type specimens of *Staphylinus aureus* FABRICIUS and *Rhynchocheilus pectoralis* SHARP. I am very grateful to Dr. H. SHILLHAMMER of the Naturhistorisches Museum Wien for his kind offer of the specimens of the group of *Rhyncocheilus aureus* and information about the *Eucibdelus* group; to Dr. Shun-Ichiro NAOMI of the Natural History Museum and Institute, Chiba, Dr. Fumiaki KIMURA of the Kashihara Insectarium and Mr. Hiroyoshi KONISHI (Ikoma City) for their kind loan of *Rhyncocheilus aureus*. I am much indebted to Dr. Shun-Ichi UÉNO, Emeritus Curator of the National Science Museum (Nat. Hist.), Tokyo, for his invaluable guidance on the nomenclatural problem and for his kindness of critically reading the manuscript of this paper.

Terminology. The main terminology and the abbreviations used herein are the same as those explained in the previous parts of this series of papers.

Differential Diagnosis of *Rhyncocheilus* FAUVEL and *Rhynchocheilus* SHARP

1. Pronotum obtrapezoidal, rather widely flattened in middle; protarsus much widened and foliaceous, much wider than apex of protibia; terminal spurs of tibiae very short, hardly visible; 5th segment of maxillary palpus not haired; genal and subgenal macrosetae absent; molar tooth of mandible large and wide ..... *Rhyncocheilus* FAUVEL.

— Pronotum barrel-shaped to subcylindrical and strongly convex as a whole; protarsus less widened and sub-oblong, a little narrower than apex of protibia; terminal spurs of tibiae long, distinctly visible; 5th segment of maxillary palpus haired; genal and subgenal macrosetae basically present; molar tooth of mandible small and narrow ..... *Rhynchocheilus* SHARP.

Genus *Rhyncocheilus* FAUVEL

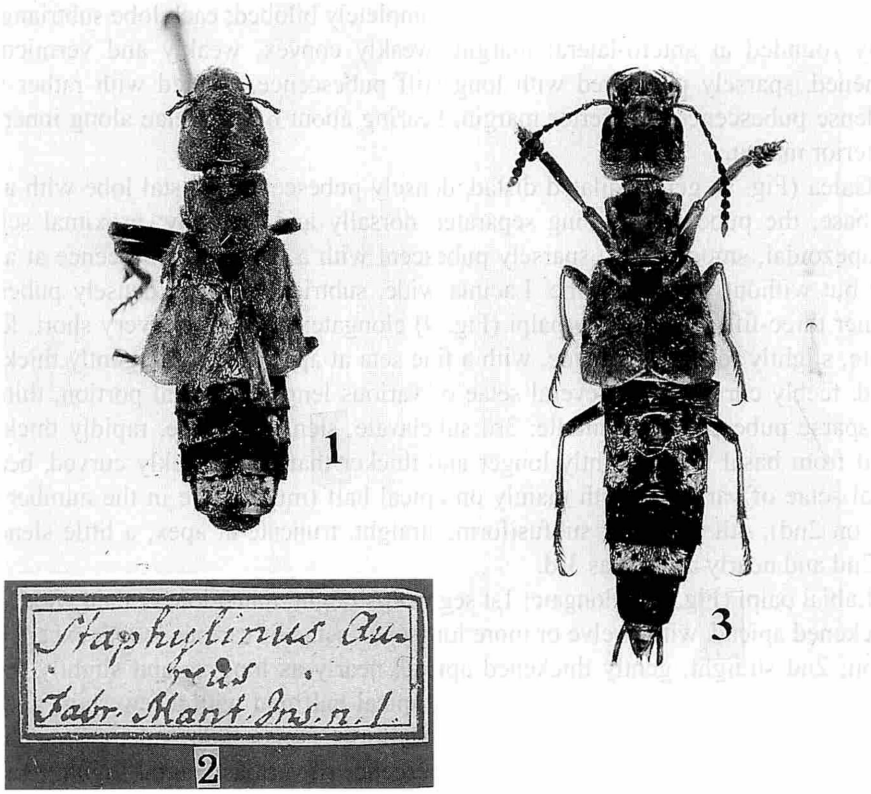
(Figs. 1–22)

FAUVEL, 1882, Revue Ent., Caen, **1**: 211. —— BLACKWELDER, 1952, Bull. U.S. natn. Mus., **200**: 341.

Type species: *Staphylinus aureus* FABRICIUS (type area: Siam).

Body thick, wide, robust, rather flattened above, covered with conspicuous tomentum and rather shiny.

Head (Fig. 4) large, wide, subtrapezoidal (seemingly subtriangular including labrum), widened posteriad, rounded at hind angles, feebly emarginate at base, feebly convex above; surface densely and minutely punctured on dorsum, with dense pubescence; neck thick, much wider than half the width of head. Antennae (Fig. 5) filiform, rather long, with basal 4 segments polished but 4th segment weakly so. Eyes large in size, strongly convex, a little shorter than postgenae. Chaetotaxy of head composed of



Figs. 1–3. *Rhyncocheilus aureus* (FABRICIUS); 1, habitus, holotype, female; 2, label attached to the holotype; 3, habitus, male.

5 pairs of macrosetae, *viz.*, supra-antennal, supraorbital, postgenal, occipital and infraorbital macrosetae, supraorbital and occipital ones sometimes accompanied with one or two long setae, the occipital macrosetae situated before postgenal ones; genal, front marginal and subgenal macrosetae reduced, imperceptible, but the front marginal one is rarely present and mal-developed.

Subgenae rather flat, minutely reticulo-cribrate as minute punctures, finely and sparsely punctured, with pubescence. Infragenal line absent.

Mandibles (Figs. 6 & 7) long and robust, strongly curved inwards, gently so ventrad, narrowly sulcate along inner margin of apical half and sharply edged at the upper margin; left mandible more strongly curved than the right, bearing 2 large teeth, namely canine and molar, the canine tooth large and long, acute at the tip, and the molar tooth very large, wide and subquadrate, rectangular at the distal angle, sharply protuberant at the proximal angle as a small tooth; right mandible bearing a large, wide and subquadrate molar tooth, which is sharply protuberant at the distal and proximal

angles.

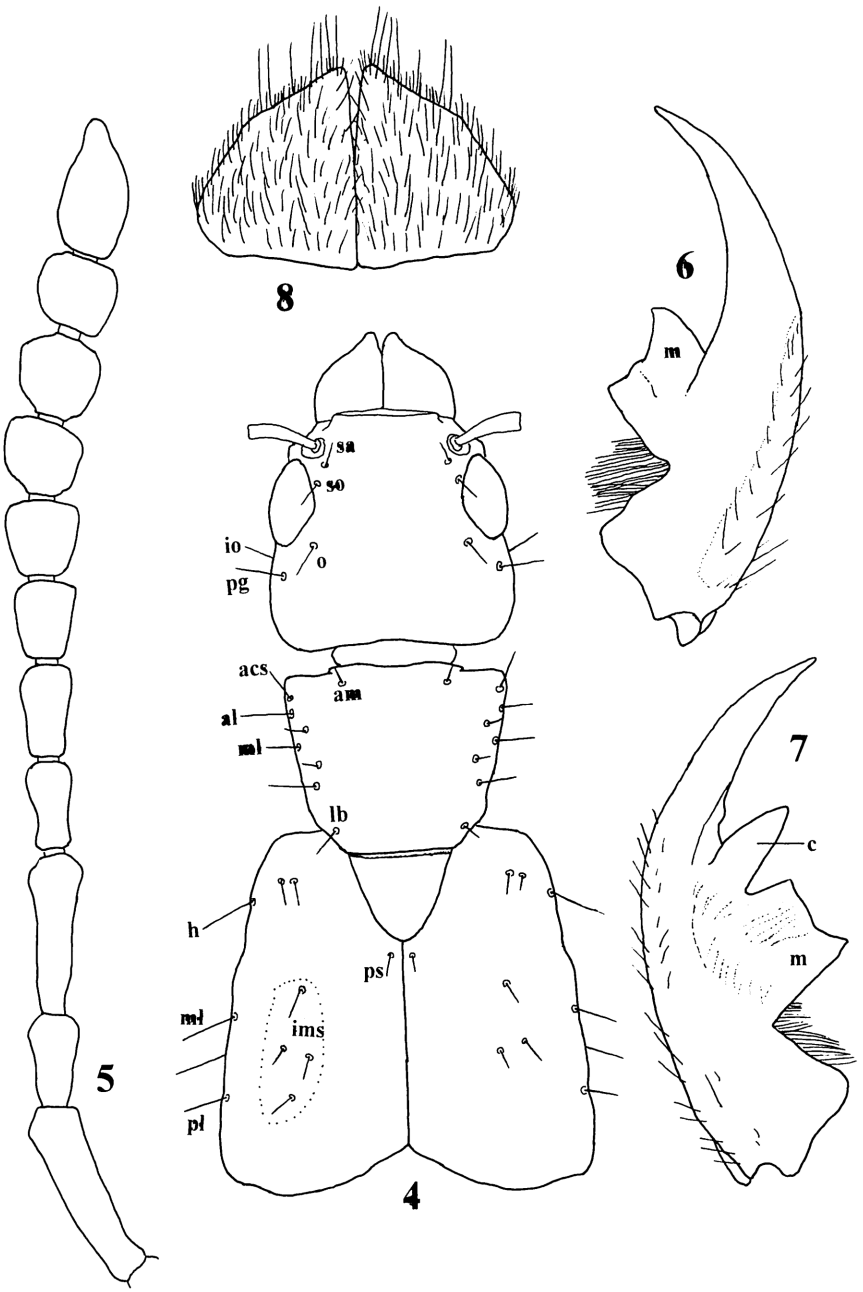
Labrum (Fig. 8) very long, wide, and completely bilobed; each lobe subtriangular, largely rounded at antero-lateral margin, weakly convex, weakly and vermicularly roughened, sparsely punctured with long stiff pubescence, fringed with rather short and dense pubescence at anterior margin, bearing about 6 long setae along inner half of anterior margin.

Galea (Fig. 9) gently dilated distad, densely pubescent on distal lobe with a seta near base, the pubescence being separated dorsally and ventrally; proximal sclerite subtrapezoidal, smooth, very sparsely pubescent with a few fine pubescence at apical angle but without terminal spine. Lacinia wide, subtriangular and densely pubescent on inner three-fifths. Maxillary palpi (Fig. 9) elongate; 1st segment very short, feebly arcuate, slightly longer than wide, with a fine seta at apex; 2nd long, gently thickened apicad, feebly curved, with several setae of various length in apical portion, thin and very sparse pubescence in middle; 3rd subclavate, slender at base, rapidly thickened apicad from basal third, slightly longer and thicker than 2nd, weakly curved, bearing several setae of various length mainly on apical half (much more in the number than those on 2nd); 4th glabrous, subfusiform, straight, truncate at apex, a little slenderer than 2nd and nearly as long as 3rd.

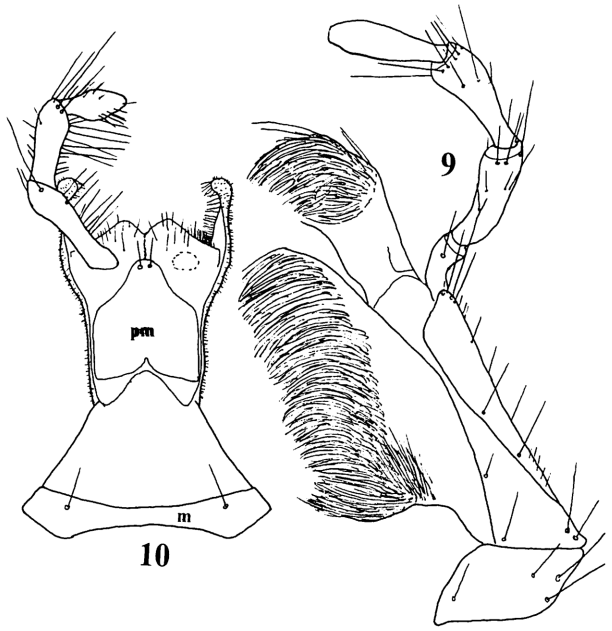
Labial palpi (Fig. 10) elongate; 1st segment straight, much longer than wide, gently thickened apicad, with twelve or more long erect setae of various length except basal portion; 2nd straight, gently thickened apicad, nearly as long as and slightly thicker than 1st, with several long setae mainly on apical half and with a few short and thin setae near base and on lateral side; 3rd subfusiform, longer than wide, a little shorter and slenderer than 2nd, with sparse stiff pubescence of various length. Ligula long and wide, widely excised at apex in two lobes, deeply impressed medially, each lobe fringed with pubescence at apical margin and sparsely pubescent on ventral face. Paraglossae long and wide, rounded at each tip, reaching the middle of 2nd segment of labial palpus, combed with dense thin setae at each inner margin and densely pubescent dorsally. Prementum subpentagonal, rather long, nearly as long as wide and finely depressed medially.

Mentum (Fig. 10) very short, rather weakly sclerotized, feebly emarginate at front margin, with a long erect seta inside each front corner. Submentum roundly depressed in the middle, with several long erect setae and a few thin short setae. Mental fossae sharply carinate along hind border. Gular suture very narrowly separated.

Pronotum (Figs. 4, 11 & 12) obtrapezoidal, transverse, more or less narrower than head, much narrower and shorter than elytra, nearly straightly narrowed posteriad; disc weakly convex, with dense, umbilicate and rather small punctures with long tomentose pubescence; median line narrow and weakly convex, irregularly impunctate; anterior corner strongly and subtriangularly expanded laterad, and superior lateral line invisible in dorsal view, united with inferior lateral line at about the level of anterior two-fifths of the sides in ventral view, so that the hypomeron is narrow and small; anterior corner conspicuously widely protrudent laterad in ventral view, so that the anterior margin is



Figs. 4–8. *Rhyncocheilus aureus* (FABRICIUS). —— 4, Head, pronotum and elytra with chaetotaxy of setae in male (al: antero-lateral, am: antero-marginal, h: humeral, io: infraorbital, lb: latero-basal, ml: mid-lateral, o: occipital, pg: post-genal, pl: post-lateral, ps: parascutellar, sa: supra-antennal, and so: supraorbital macrosetae; acs: seta on anterior corner and ims: intermedial setae); 5, antenna; 6, left mandible (m: molar); 7, right mandible (c: canine and m: molar); 8, labrum.



Figs. 9–10. *Rhyncocheilus aureus* (FABRICIUS). —— 9, maxilla; 10, labium (m: mentum and pm: prementum).

visible only in the middle half in dorsal view; chatotaxy composed of 4 usual macrosetae and 1 additional macroseta, *viz.* antero-marginal, antero-lateral, mid-lateral, latero-basal and ante-angular macrosetae, a few additional long setae being present between ante-angular and antero-lateral macrosetae. Epimeron (=hypomeral projection) absent.

Scutellum large, lingulate, rounded at apex; prescutum well developed.

Elytra (Fig. 4) subtrapezoidal, nearly straightly dilated posteriad and feebly emarginate at hind margin, flattened, minutely and rather densely punctured, with streamings of tomentose pubescence; sutural space narrowly convex but obscurely delimited, parasutural line not impressed. Macrosetae forming rather underdeveloped chaetotaxy, thin and not so long; humeral, mid-lateral and post-lateral macrosetae well recognized, but the parascutellar macrosetae are reduced, barely perceptible far distant from scutellum, each macrosetae sometimes accompanied with one or two setae; several long setae (similar in size to macrosetae) arranged longitudinally in inner mid area.

Prosternum (Figs. 11 & 12) rather flattened, moderately long, widely transversely convex in middle, without a pair of macrosetae at the middle but with a few dark poor long setae in a middle transverse row and not carinate medially; lateral border short, bounded with anterior angle of pronotum; prosternal fossae deep; prosternal process slightly convex and rounded at the tip. Furcasternum short, not carinate medially.

Mesosternum (Fig. 13) transversely subrhomboidal, reflexed laterally, feebly convex in middle, sparsely and minutely punctured with long pubescence, widely rounded

at posterior angle; intersternal piece very shallowly sunken. Mesocoxae widely separated.

Abdomen very wide, subparallel-sided, 3rd to 6th segments shallowly depressed dorso-ventrally at each base, finely and densely punctured with tomentose pubescence; 4th to 7th sternites each with several bare round spots, each spot bearing a bristle at the centre; male 7th sternite (Fig. 14) feebly emarginate in the middle of hind margin; male 8th sternite (Fig. 14) widely roundly emarginate in the middle of hind margin; male 10th tergite (Fig. 15) subtriangular, not setose; 9th sternite (Fig. 16) rather narrow, deeply and widely emarginate at apex. In female, 8th sternite slightly emarginate at hind margin; 10th tergite (Fig. 17) subtriangular, not prolonged laterally at base; 2nd gonocoxite (Fig. 18) thick and relatively short, not setose but with long stiff pubescence of various length at apical portion, and minute stylus with a few fine and weak setae of various length at apex.

Legs moderately long, fore legs stout, mid- and hind legs slender; tibiae not spinous, terminal spurs very short, hardly visible; protibiae (Fig. 19) moderately thickened apicad as usual, meso- and metatibiae elongate and feebly curved; protarsi (Fig. 19) strongly dilated and patellate in basal 4 segments, gently narrowed apicad, much wider than apex of protibia and with agar-like dense hairs on planta, 5th segment flat, short, nearly as long as 4th and invaginated into 4th; metatarsi (Fig. 20) with 1st segment distinctly longer than the following 2 segments combined and nearly as long as 5th, 2nd to 4th segments each seemingly bilobed; empodial setae paired, generally about two-thirds as long as claw but rather variable in length.

Male genitalia (Figs. 21 & 22) elongate, subparallel-sided and asymmetrical; penis subcylindrical; parameres unilobed, inclined to the left, narrowed apicad, with numerous peg-setae on apical portion of inner face.

Notes. This genus is more closely related to the genus *Phytolinus* SHARP than to the genus *Rhynchocheilus* SHARP in the following characteristics: in both the former two genera, the 4th segment of the maxillary palpus is glabrous, the 3rd segment of labial palpus is elongate and nearly as long as the 2nd, structures of the molar teeth and of the protarsi are very similar to each other, and at least terminal spurs of the protibiae are hardly visible.

Rhyncocheilus aureus (FABRICIUS)

(Figs. 1–22)

Staphylinus aureus FABRICIUS, 1787, Mant. Ins., **1**: 219. —— OLIVIER, 1794, Ent. III, **42**: 7, t. 2, f. 1. —— KRAATZ, 1859, Arch. Naturg., **25**: 74.

Palaestrinus (?) *aureus*: ERICHSON, 1839–'40, Gen. Spec. Staph., 344.

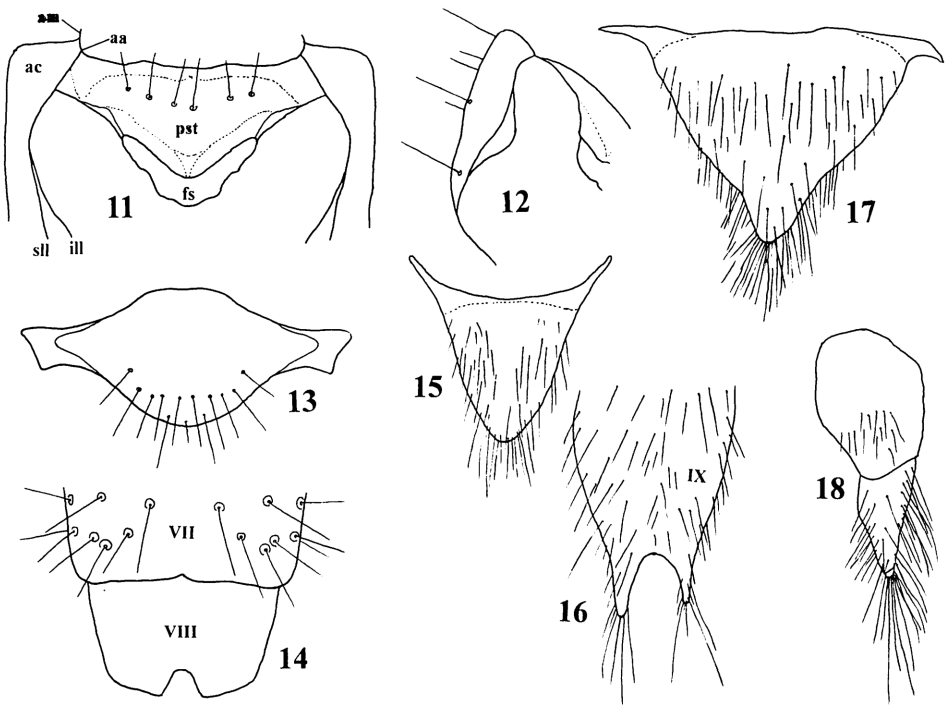
Rhyncocheilus aureus: FAUVEL, 1882, Revue Ent., Caen, **1**: 211. —— BLACKWELDER, 1952, Bull. U. S. natn. Mus., **200**: 341.

Rhyncocheilus aureus: BERNHAUER & SCHUBERT, 1914. Coleopt. Cat., (57): 394.

Rhyncochilus aureus: CAMERON, 1932, Fn. Brit. India, Coleopt. Staphylinidae III, 225–226.

Description of the type specimen.

Female. Body thick, robust, gently convex above, fairly shiny, mainly covered with yellowish golden pubescence in fore body and with whitish golden pubescence in hind body; head, pronotum and elytra light reddish yellow, with a few indistinct obscure patches here and there; labrum and palpi yellowish brown, the former covered with long and sparse golden pubescence, mandibles and maxillae pitchy; antennae with basal 2 segments yellowish brown and their apical halves infuscate, the following segments lost; prosternum, inflexed sides of pronotum, abdomen, coxae and tibiae except for the apices blackish; scutellum yellowish brown with a large, black and suboval mark in hind part; metasternum reddish yellow and densely covered with long, shiny golden pubescence; 3rd and 4th tergites of abdomen yellowish brown at sides and hind margins, densely covered with long whitish golden pubescence except for both sides of the middle and peri-spilacular portions; 5th tergite densely covered with whitish golden pubescence on both lateral sides and dense black ones in middle; 6th and 8th segments covered with dense blackish brown to blackish pubescence, but each sternite with patches of scanty silvery white pubescence at sides and the middle; 7th tergite



Figs. 11–18. *Rhyncocheilus aureus* (FABRICIUS). —— 11, Ventral view of prothorax (aa: apical angle, ac: anterior corner; am: apical margin, fs: furcasternum, ill: inferior lateral line, pst: prosternum and sll: superior lateral line); 12, ditto, oblique view (see Fig. 4); 13, mesosternum; 14, male 7th and 8th sternites of abdomen; 15, ditto, 9th sternite; 16, male 10th tergite; 17, gonocoxite of female genital segment; 18, female 10th tergite of abdomen.

densely covered with long silvery white pubescence except for apical area, with 3 pairs of bare spots; 3rd to 5th sternites of abdomen wholly covered with dense, long and silvery white pubescence, 3rd sternite with a pair of bare spots, 4th with 5 pairs and 5th with about 10 pairs of similar ones, 7th sternite rather sparsely covered with long silvery white pubescence and with 8 pairs of similar ones, the spots being glabrous, each bearing a large seta with its socket; tibiae and tarsi yellowish brown, protibiae weakly darkened dorsad. Length: about 20 mm (in a shrunk state).

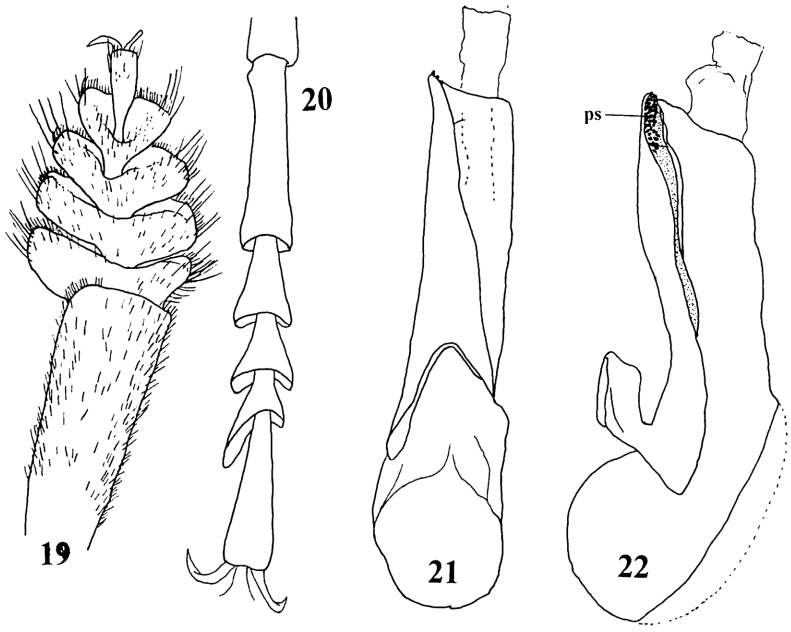
Head subtrapezoidal, at a glance not strongly dilated behind because of strongly convex eyes, nearly straight at sides, considerably emarginate at base, widely rounded at basal angles, a little wider than long (43.0 : 37.0), a little wider and longer than pronotum (43.0 : 39.0 & 37.0 : 31.0); dorsal surface gently convex above, very shallowly depressed at the top of vertex, minutely and very densely punctured but the punctures are much smaller and rather sparse in occipital area. Mandibles very long, nearly three-fourths as long as head. Labrum very large, about a half as long as head. Eyes large, strongly convex and about three-fifths as long as postgenae. Antennae with basal 2 segments much longer than wide and each segment with the following relative length: 18.0–10.0, the following segments lost. Subgenae nearly flattened, opaque, minutely and sparsely punctured as on vertex but much more sparsely pubescent; subgenal macrosetae absent; mental fossae finely carinate except for inner third of each posterior margin.

Pronotum obtrapezoidal, conspicuously narrowed behind, much wider than long (39.0 : 31.0), nearly two-thirds as long as and a half as wide as elytra (39.0 : 64.0 & 31.0 : 63.0), feebly arcuate at sides, gently convex and shallowly depressed at anterior corner; anterior margin feebly emarginate, basal one feebly arcuate, anterior angles simply rounded, basal angles widely so; disc finely and very densely punctured, the punctures umbilicate and much larger than those on head; median line narrow, weakly convex, irregularly impunctate and running from front fourth to base; about 2 or 3 long additional setae present along lateral side between respective macrosetae.

Elytra subtrapezoidal, gently dilated posteriad, nearly as wide as long, flattened, feebly arcuate at sides, shallowly emarginate at apices and simply rounded at latero-apical angles; surface minutely and sparsely punctured, with rather sparse and short pubescence, somewhat uneven and shallowly depressed here and there, the depressions each bearing a macro- or long seta at the middle; in addition to original macrosetae, several less long setae present in median area of elytron.

Abdomen wide, gently convex above, shallowly depressed at each base of 3rd to 6th tergites, finely and closely punctured, the punctures becoming smaller posteriorly on each segment and a little larger on sternites than on tergites; 8th segment gently arcuate at posterior margin and shallowly emarginate in the middle; paratergites rather wide and almost vertically erect.

Fore legs thick, long and robust, much longer than mid- and hind legs, which are slender and not long; protibiae thick, clavate, gently thickened apicad, weakly curved ventrad, with long and dense suberect pubescence on underside; protarsi with basal 4



Figs. 19–22. *Rhyncocheilus aureus* (FABRICIUS); 19, protarsus, male; 20, metatarsus, male; 21, male genitalia, in ventral view; 22, ditto, lateral view (ps: peg setae).

segments conspicuously strongly dilated and flattened, much wider than the apex of protibia, sparsely pubescent dorsally, very densely covered with short modified pubescence on the sole, and 5th segment rather short, flat, invaginated mostly into dorsum of 4th as in the genus *Phytolinus* SHARP, and the apical portion only beyond 4th; meso- and metatibiae each with 2nd to 4th segments apparently bilobed in dorsal view, the outer lobe much longer than the inner one; 1st segment of metatarsi a little longer than the following 2 segments combined.

Specimen examined. 1♀ (holotype), labeled "*Staphylinus aureus* Fabr. Mant. Ins. n. 1".

Note. The type specimen examined only bears the species name label as shown in Fig. 2 without any other data label. Judging from other female specimens, the 10th tergite is subtriangular, blunt at the apex, and the base is produced laterally for a short length.

Additional description of male specimen.

Body a little slenderer. Head relatively long and less dilated posteriad, slightly wider than long (35 : 32); eyes more strongly convex, less short than postgenae (12.0 : 7.0); antennae (Fig. 5) long and slender, reaching near basal angles of pronotum, gradually thickened apicad, 1st to 5th and 11th segments distinctly longer than wide, 6th nearly as long as wide, 7th to 10th a little transverse, 11th segment entirely whitish and each segment with the following relative length: 25.0–14.0–23.0–13.0–

13.0–12.0–10.0–10.0–11.0–11.0–17.0. Pronotum relatively wide, slightly narrower than head (33 : 35), a little wider than long (35.0 : 28.0). Abdomen with 8th tergite nearly truncate at apical margin; 8th sternite narrowly and feebly emarginate at apical margin and subtriangularly flattened before the emargination. Protibiae a little slenderer.

Male genitalia (Figs. 21 & 22) in ventral view rather thick, slightly narrowed apicad and a little asymmetrical; penis nearly straight at sides and obliquely truncate at the apex, which is sharply protuberant to the left; parameres unilobed, elongate, reaching apex of penis, strongly inclined to the left, nearly straightly narrowed towards the blunt tip, with peg setae densely distributed at margin of apical portion.

Specimens examined. 1♂, Tan Keo (alt. 800 m), Doi Suthep, Chiang Mai Prov., N. Thailand, 10–VI–1965, Y. MIYATAKE leg.; 1♂, Ban Huai Po (alt. 1,600–2,000 m; 19.19N and 97.59E), Mae Hong Son, NW Thailand, 17~23–V–1991, L. DEMBICKY leg.; 1♀, Ph Rao, Thailand, 26–V–1991, H. KONISHI leg. 1♀, Doi Sang, N. Thailand, 3~9–V–1990.

Notes. The present species is very similar to *Rhyncocheilus andrewesi* CAMERON, from India (Nilgiri Hills) but is easily distinguished from the latter in the colour of hairs on the 7th abdominal tergite, that is, in the former the colour is silvery but in the latter it is golden. The specimens from Ban Huai Po, Ph Rao and Doi Sang are a little different, though distinctly, from typical specimens in having much less convex eyes, blackish apex of the 11th segments of antennae and a little different apical portion of the male genitalia.

Genus ***Rhynchocheilus*** SHARP

(Figs. 23–39)

Rhynchocheilus SHARP, 1889, Ann. Mag. nat. Hist., (6), **3**: 120. —— BERNHAUER & SCHUBERT, 1914 (spelled as *Rhyncocheilus*), Coleopt. Cat., (57): 394. —— CAMERON, 1932, Fn. Brit. India, Coleopt. Staph. III, 223–225. —— SCHEERPELTZ, 1933 (spelled as *Rhyncocheilus*), Coleopt. Cat., (129): 1407. —— BLACKWELDER, 1952, Bull. U. S. natn. Mus., **200**: 341.

Type species: *Rhynchocheilus pectoralis* SHARP.

Body markedly elongate and robust, somewhat gnarled, moderate to large in size, covered with conspicuous tomentum and moderately shining.

Head large, subquadrate, rounded at hind angles, bearing a pair of large and rather shallow foveae between eyes; genae very short, base of mandible nearly contiguous to eye; postgena long, more or less longer than longitudinal diameter of eye; chaetotaxy of macrosetae variable in respective species, and the macrosetae and their sockets sometimes discernible, genal setae and infraorbital ones rather mal-developed; discal punctures dense and umbilicate; infragenal line absent. Eyes large, strongly convex laterad. Antennae rather long, filiform, basal 4 to 6 segments polished and the following 1 or 2 segments sometimes weakly polished. Neck not so thick, about two-fifths as wide as head.

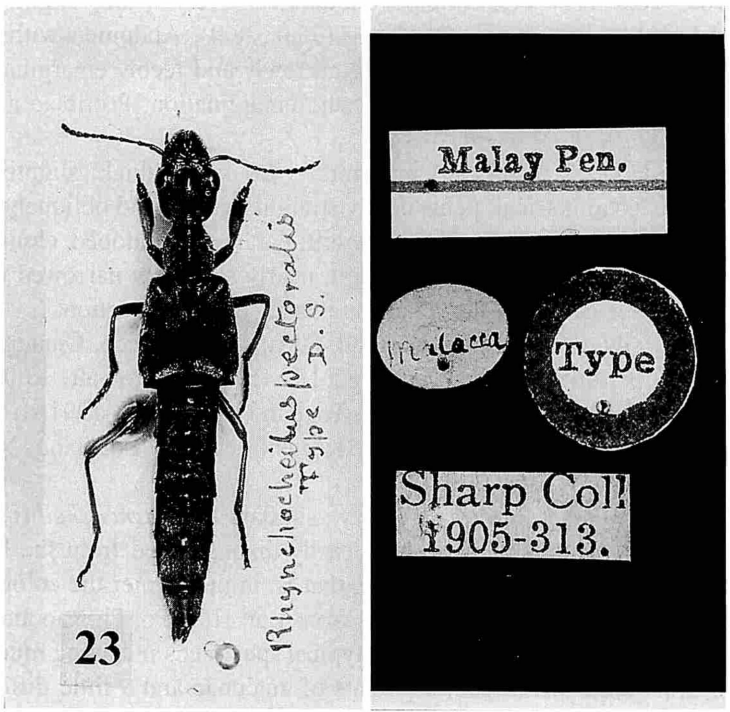
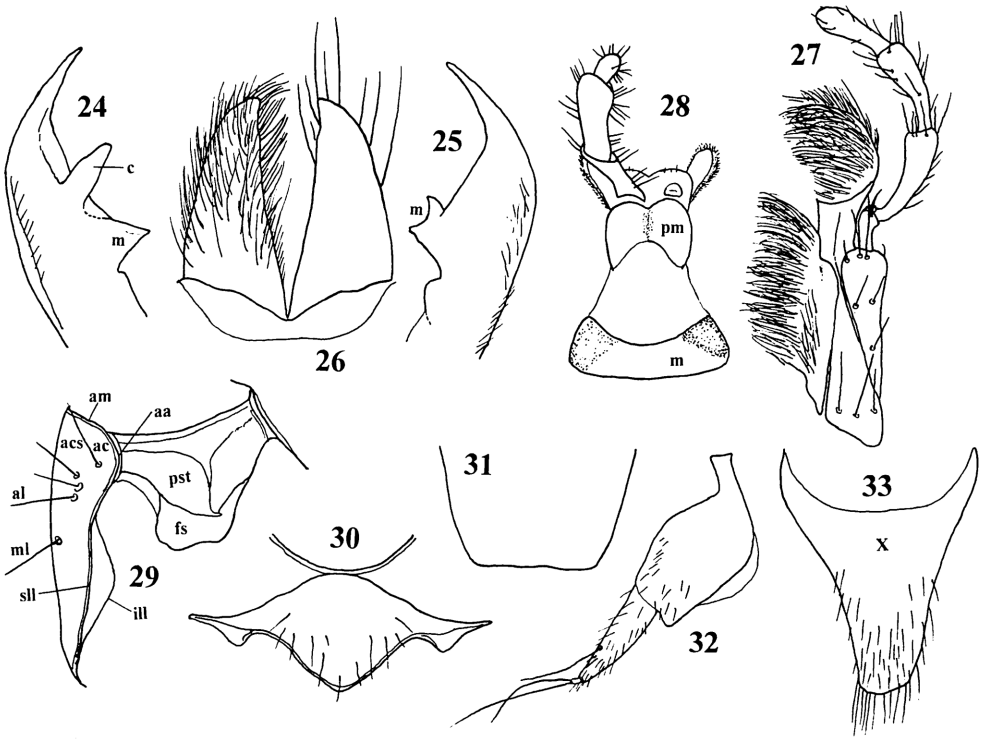


Fig. 23. *Rhynchocheilus pectoralis* SHARP; 23, habitus, holotype, female, and label attached to the holotype.

Mandibles (Figs. 24 & 25) thick, long, robust, about as long as head, projecting a little ventrad, conspicuously curved ventrad at about the middle and convex dorso-laterally like a ridge in basal half of lateral margin; left mandible bearing 2 large teeth, *viz.*, canine and molar, the molar situated at about basal third and wide at base, rather short and narrow, much shorter than the canine, which is situated at about the middle of upper side, very long, stout and sharp; right mandible with a conspicuous molar at about basal third, the molar as large as the left one and sharply bidenticulate at the apex.

Labrum (Fig. 26) large and long (sometimes nearly as long as head) but rather variable in size and shape according to species, incised to the base, lobes subtriangular, furnished with long stiff pubescence and setae, and strongly declivous antero-laterally.

Galea (Fig. 27) thickened apicad; distal lobe rather wide, densely pubescent, but the pubescence is divided into dorsal and ventral strata; proximal sclerite subtrapezoidal, glabrous and without any terminal setae at the apex. Lacinia elongate, densely pubescent in inner half, with numerous short pubescence at base, the pubescence somewhat spread out at the inner margin. Maxillary palpi (Fig. 27) elongate; 1st segment the shortest, nearly twice as long as wide and bearing a long fine seta at the apex; 2nd elongate, much longer than wide, gently curved inside and thickened apicad, with



Figs. 24–33. *Rhynchocheilus pectoralis* SHARP. —— 24, Left mandible (c: canine and m: molar); 25, right mandible (m: molar); 26, labrum; 27, maxilla; 28, labium (m: mentum and pm: prementum); 29, oblique view of prothorax (abbreviations same as in Figs. 4, 11 & 12); 30, mesosternum; 31, female 8th sternite of abdomen; 32, gonocoxite of female genital segment; 33, female 10th tergite of abdomen.

sparse fine setae mainly on the outer side and several longer and fine setae at the apex; 3rd gently thickened apicad and curved inwards, almost as long as and as thick as 2nd, bearing sparse short fine setae nearly in the middle, and several longer fine setae at the apex; 4th subclavate, a little shorter than 3rd, blunt at the tip and with very scanty fine setae here and there.

Labial palpi (Fig. 28) long and slender; 1st segment slender, long, nearly twice as long as wide, weakly thickened apicad, with several erect setae on the inner side; 2nd strongly thickened apicad, obconical, a little longer than wide, a little longer and much thicker than 1st, bearing numerous erect setae of various length on the inner side; 3rd subcylindrical, much shorter than 1st, much slenderer than 2nd, slightly longer than wide, blunt at the tip, and bearing scanty erect setae here and there. Ligula (Fig. 28) short, bilobed by a shallow excision, sulcate medially and with scanty short fine hairs, each lobe gently arcuate at apical margin. Paraglossae moderate in length, embracing labial palpi in between them, facing to each other, not reaching apex of 1st segment of

labial palpi, furnished with dense long stiff pubescence at the inner edges and densely pubescent dorsally. Prementum short, much wider than long and impressed medially.

Mentum (Fig. 28) very short, strongly transverse, rather deeply emarginate at front margin, depressed on each side, without any setae at each lateral corner, which is shallowly depressed. Gular sutures very narrowly separated from each other; gular plate very shallowly depressed.

Pronotum (Fig. 29) barrel-shaped to subcylindrical, strongly convex, nearly as long as wide, much narrower and shorter than elytra; discal punctures dense and umbilicate; chaetotaxy composed only of antero-lateral macrosetae and mid-lateral ones, the former accompanied with a few well-developed long setae, other macrosetae reduced, imperceptible; superior lateral line hidden under pronotum at hind angle, then running forwards and united with inferior lateral line a little behind apical angle, the united line extending forwards and shifting to anterior margin, which is visible nearly in full length. Epimera (=hypomeral projection) absent.

Scutellum triangular, rounded at apex, nearly flattened; prescutum well developed.

Elytra long, wide, rather flattened, subquadrate, weakly dilated posteriad, disc finely punctate; sutural area weakly and narrowly convex, ill-defined and sparsely punctured; chaetotaxy on each elytron mainly composed of 3 groups of macrosetae, which are rather mal-developed, lateral group being on lateral margin and consisting of humeral, mid-lateral and post-lateral macrosetae, median ones consisting of antero-median, mid-median and post-median macrosetae, and inner one consisting of parascutellar and parasutural macrosetae, but those macrosetae are not stable, often irregular or absent, especially in the inner group.

Prosternum (Fig. 29) rather flattened, gently convex in the middle and not ridged medially; paired long setae absent; prosternal process sometimes protuberant vertically; prosternal fossae not deep; lateral borders long, united with pronotum at the apical angles. Furcasternum narrow, not short, weakly emarginate at hind margin and convex medially but not ridged. Mesosternum (Fig. 30) rather long, gently rounded behind, weakly and transversely convex behind the middle, indefinitely and finely rugose, with long tomentose pubescence, punctures imperceptible and without carina or ridge; intersternal piece shallowly sunken. Mesocoxae widely separated.

Abdomen elongate, nearly parallel-sided, much narrower than elytra; 3rd to 6th segments deeply and transversely depressed at each base and markedly convex in each apical half of the tergites, 7th and 8th tergites even, not depressed or convex; 8th sternite in male (Fig. 36) rather deeply and roundly emarginate at apex; male 9th sternite (Fig. 37) wide, somewhat foliaceous and narrowly incised at apex. Female 8th sternite (Fig. 31) nearly truncate at apical margin; female 9th sternite with a subcylindrical minute stylus, which is distinctly separated from second gonocoxite (Fig. 32) with membranous part and bearing 2 fine setae; 10th tergite (Fig. 33) subtriangular, subtruncate at apex, not setose, base protuberant laterally like a long band as in *Eucibdelus* (s. str.) but not separated into distinct pieces.

Legs long and slender; all the tibiae pubescent, without any spines but with conspicuous terminal spurs; empodial setae paired, not long and straight; procoxae rather elongate; profemora elongate, straightly narrowed apicad; protibiae (Fig. 34) long, strongly clavate, thick and stout, apex shallowly emarginate at the inner half, bearing a few short spines and fringed with pubescence; protarsi (Fig. 34) dilated, sub-oblong, not spatulate, much narrower than apex of protibia, with planta bearing pale agar-like hairs on basal 4 segments, each one of which is very short, much wider than long, and 5th narrow, weakly curved ventrad, slightly shorter than the preceding 4 segments combined; claws slender and rather short; mesotibiae slender, slightly thickened apicad and weakly curved downwards, proportion of each mesotarsomere very similar to that of metatarsomere; metatibiae slender, slightly arcuate inwards; metatarsus (Fig. 35) with 1st to 4th segments densely pubescent underneath and each segment shorter than the preceding one, 1st segment long, much longer than the following 2 segments combined and nearly as long as the following 3 segments together, 3rd and 4th segments seemingly more or less bilobed in dorsal view, the inner lobe shorter than outer one, 5th long, slightly shorter than 1st, strongly clavate, thick, curved below, deeply excised at apex of underside and sparsely pubescent; claws nearly symmetrical and produced from the excision; empodial setae paired, thin and about two-thirds as long as claw.

Male genitalia (Figs. 38 & 39) almost symmetrical; penis with dorsum weakly sclerotized and partially membranous; parameres well developed, unilobed, with numerous fine tubercles (=peg-setae) on apical portion of inner face (dorsal side).

Notes. This genus is considerably different from *Rhyncocheilus* FAUVEL in the structure of the pronotum, the fore leg and tibiae as mentioned above in the key, and the former is more closely related to the latter than to any other genera of the *Eucibdelus* group (*sensu* HAYASHI, 1997) in view of the similarity of the buccal organs. This genus is rather similar in general appearance to robust *Eucibdelus*.

Rhynchocheilus pectoralis SHARP

(Figs. 23–35)

Rhynchocheilus pectoralis SHARP, 1889, Ann. Mag. nat. Hist., (6), **3**: 120.

Description of type specimens.

Female. Body very elongate and stout, somewhat gnarled, covered with golden tomentum and weakly shiny. Colour black; labrum and tarsi pitchy brown; antennae with 1st segment reddish brown, each apex of 4th to 6th segments narrowly reddish and the rest blackish; head and pronotum variegated with short golden tomentum, the tomentum very sparse in frontal portion, those on pronotum longer and more fleecy; scutellum velvety with stiff black pubescence in the hind half mingled with sparse golden pubescence; elytra brown to deep brown, rather sparsely clothed with long fleecy golden tomentum; abdomen with apices of segments obscurely reddish, 3rd to 6th tergites widely almost glabrous in middle, base and sides of each segment clothed

with golden long tomentum as on pronotum but the tomentum becoming much shorter and denser around the glabrous portions, 7th and 8th tergites wholly clothed with golden tomentum, and underside very sparsely tomentose; coxae dark brown, femora and tibiae yellowish brown. Length: 19.5–21.0 mm.

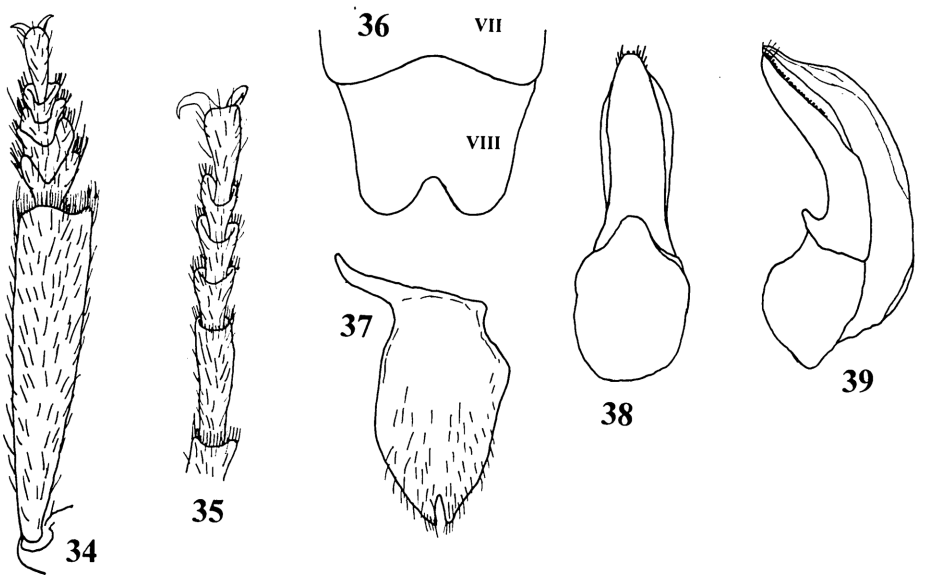
Head obtrapezoidal, gently narrowed behind, a little wider than long (31.5 : 26.0), much wider and slightly longer than pronotum (31.5 : 23.5 and 26.0 : 24.0); postgenae weakly arcuate, a little longer than eyes (4 : 3), which are strongly prominent; hind angles widely rounded and hind margin rather deeply emarginate; upper surface with a pair of large rounded depressions between eyes, moderately densely and coarsely punctured but narrowly and subtriangularly impunctate in front area, the punctures rather coarse and sparse in front area and rather dense along ventral margins of postgenae, the interstices smooth, very minutely and sparsely punctured without any microsculpture. A well developed large seta present posteriorly inside each eye. Neck not wide, about two-fifths as wide as head. Antennae long and slender, reaching elytral shoulder, feebly thickened in apical 5 segments; basal 5 segments polished, 6th weakly polished, 8th to 10th somewhat asymmetrical, 8th the thickest, 11th subfusiform; all the segments more or less longer than wide, and each segment with the following relative length: 17.0–10.0–14.0–7.0–6.0–6.0–6.0–5.5–5.5–5.0–8.5.

Basal molar tooth of left mandible simple. Labrum (Fig. 0) remarkably large and long, divided into 2 triangular lobes, more than four-fifths as long as head, simply rounded at apex, strongly declivous antero-laterally, clothed with long sparse pubescence, finely and very sparsely punctured dorsally, covered with transverse linear microsculpture, with several long setae along each apical margin, which is fringed with long pubescence at the extremities. Fourth segment of maxillary palpus with rather long and very scanty hairs. Paraglossae with dorsal sides densely ciliated. Gula slightly divergent posteriad from posterior third; gular plate very shallowly depressed.

Pronotum nearly barrel-shaped, strongly convex, nearly as long as wide, much shorter and narrower than elytra (23.5 : 45.5 and 24.0 : 48.0), widest just behind anterior third and more strongly narrowed in front than behind; front margin weakly emarginate, front angles obtusely angulate but not tuberculate, side margins gently arcuate, hind angles simply rounded, hind margin weakly arcuate and a little longer than front one; disc rather coarsely and extremely densely punctured except for much less punctured narrow space along front margin and on median line, with nearly flat small plaque lying at the middle and base on the mid-line of each half, the punctures umbilicate and a little smaller than those on head, interstices in densely punctured area markedly rugosely convex and without microsculpture; apical corner in ventral view wide but not protrudent.

Scutellum nearly flattened, clothed with rather sparse yellow tomentum mingled with golden one in anterior half, and dense black and short pubescence in posterior half, finely and extremely densely punctured except marginal portions, which are sparsely punctured; prescutum rough.

Elytra long, wide, rather flattened, subquadrate, weakly dilated posteriad, a little



Figs. 34–39. —— 34–35. *Rhynchocheilus pectoralis* SHARP; 34, protibia and protarsus; 35, metatarsus. —— 36–39. *Rhynchocheilus* sp.; 36, male 7th and 8th sternites of abdomen; 37, male 9th sternite of abdomen; 38, male genitalia, ventral view; 39, ditto, lateral view.

longer (in the maximum length) than wide (48.0 : 43.5); sides weakly arcuate, apex shallowly emarginate, shoulder nearly square, latero-apical angles widely and inner apical angles narrowly rounded; disc densely and finely asperate-punctate, the punctures much finer and sparser in humeral and apical portions; sutural space weakly and narrowly convex and sparsely punctured.

Prosternum rather flattened, strongly convex in the middle, ridged medially in hind half, the ridge not sharp; prosternal process sharply and conspicuously protuberant vertically; prosternal fossae rather deep and rugosely roughened.

Mesosternum rather long, gently rounded behind, indefinitely and finely rugose, with very scanty pubescence; intersternal piece with several transverse sulci.

Abdomen elongate, nearly parallel-sided, much narrower than elytra (about 3 : 5); 3rd to 6th tergites deeply and transversely depressed at each base and markedly convex in each apical half, the depressions densely, coarsely and markedly rugosely punctured, the rest finely, sparsely and simply punctured, 7th and 8th tergites weakly and evenly convex, simply and much more densely punctured; tomentum on tergites running laterad at each base and latero-posteriad in the rest, and the convex portions nearly glabrous; sternites similarly structured to each opposite tergite, but the basal depressions not rugose, the pubescence long, much sparser and not tomentose, the punctures much sparser; 8th tergites gently arcuate at apex, 8th sternite nearly truncate; gonocoxite as shown in Fig. 32; 10th tergite subtruncate at apex, not setose.

Legs long and slender; profemora straightly narrowed apicad; protibiae long,

strongly clavate, thick and stout, apex shallowly emarginate at the inner half, bearing a few short terminal spurs and fringed with long yellow pubescence; protarsi gradually narrowed apicad, 5th segment narrow, weakly curved ventrad, slightly shorter than the preceding 4 segments combined; mesotibiae slender, slightly thickened apicad and weakly curved ventrad, proportion of each mesotarsomere very similar to that of metatarsomere; metatibiae slender, slightly arcuate inwards; 1st to 4th segments of metatarsus densely pubescent underneath and each shorter than the preceding one, 3rd and 4th segments seemingly bilobed in dorsal view, but the lobes are rather short, and inner lobe a little shorter than outer one, 5th long, slightly shorter than 1st, strongly clavate, thick, curved ventrad, sparsely pubescent, apex deeply excised on the ventral side but truncate on the dorsal side; claws nearly symmetrical, long and produced from the excision.

Male. Unknown.

Specimens examined. Type series: ♀, Malacca, Malay Pen. (herewith designated as the lectotype); 1♀, Malacca, Malay Pen., CASTELNAU; 2♀♀, Malay Pen. (herewith designated as the paralectotypes).

Discussion. The present species is closely allied to *R. assamensis* CAMERON, *R. antennalis* CAMERON and *R. argenteus* FAUVEL in the resemblance of general appearance and structures of the antennae and the abdomen, but it is readily distinguished from the latter three by the following points: in the latter species the 7th tergite of abdomen is covered with silvery white pubescence, and their heads are subquadrate or oblong and not narrowed behind.

要　　約

林　靖彦：アジア産ハネカクシ亜科の研究．IV. *Rhyncocheilus* FAUVEL および *Rhynchocheilus* SHARP の再検討．—— *Rhyncocheilus* FAUVEL は，従来 *Rhynchocheilus* SHARP の同物異名あるいは無効名として扱われてきたが，BLACKWELDER (1952)は前者が有効名であり，後者はその下位同物異名であるとした．しかしその後も，ほとんどの研究者が従来の立場，つまり後者を有効名として扱う立場を取ってきた．筆者は，両属の基準種の正基準標本を大英博物館から借用することができ，また手許の同属の若干の他種ともあわせて精査した結果，両者はそれぞれ独立の別属であるという結論にいたった．そこでこれら両属の再記載を行うとともに，あわせて両基準種の正基準標本の再記載をも行った．

Errata and Corrigenda

Elytra, *Tokyo*, **25**(2), p. 487:

Line 10, for ...as pronotum (... read ...as elytra (...

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Elytra, Tokyo, **27** (2): 571–572, November 13, 1999

Records of the Aquatic Coleoptera from the Island of Ikema-jima, the Ryukyus

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Until now, 2 species of the Noteridae, 3 species of the Dytiscidae and 3 species of the Hydrophilidae, which are indicated by asterisks, have been recorded from the Island of Ikema-jima of the Ryukyus. In 1998 and 1999, we had opportunities to visit the island and to collect insects. The aquatic Coleoptera collected are as listed below. Their collecting data are as follows: July 18–Aug. 3, 1998 (A), Dec. 17–29, 1998 (B), Mar. 5–17, 1999 (C) and July 30–Aug. 9, 1999 (D).

Noteridae	
Neohydrocoptus subvittulus (MOTSCHULSKY)	C
Noterus japonicus SHARP*	A, B, C, D
Canthydrus nitidulus SHARP*	A, C, D

Dytiscidae	
Hyphydrus lyratus SWARTZ	A, B
H. pulchellus CLARK	A, D
Hydrovatus pumilus SHARP	B, C
H. acuminatus MOTSCHULSKY	A, B, C, D
H. bonvouloiri SHARP	A, B, D
Laccophilus chinensis BOHEMAN	B
Copelatus tenebrosus RÉGIMBART	A, B, C, D
Hydaticus rhantoides SHARP	C
Cybister sugillatus ERICHSON*	A, B, C, D
C. tripunctatus orientalis GSCHWENDTNER*	B, C
C. ventralis SHARP*	B, C
Hydrophilidae	
Coelostoma stultum (WALKER)	A, B, C, D
Paracymus evanescens SHARP	B, C, D
Chasmogenus abnormalis (SHARP)	B, C
Helochares anchoralis SHARP	A, B, D
H. ohkurai M. SATÔ	D
Enochrus uniformis (SHARP)	A, B, C
E. esuriens (WALKER)	D
Hydrochara affinis (SHARP)	D
Hydrophilus bilineatus cashimirensis REDTENBACHER*	A, B, C, D
Sternolophus rufipes (FABRICIUS)*	A, B, C, D
S. inconspicuus (NIETNER)	A, B
Berosus elongatulus JORDAN	A

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Elytra, *Tokyo*, **27** (2): 573–580, November 13, 1999

Two New Species of the Group of *Lathrobium pollens/brachypterum* (Coleoptera, Staphylinidae) from Zhejiang Province, East China

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Abstract Two new species of the group of *Lathrobium pollens/brachypterum* are described under the names *L.* (s. str.) *cooteri* and *L.* (s. str.) *rougemonti*. The former was obtained from leaf litter on the two mountains, Mt. Lin-long Shan and Mt. Xi Tian-mu Shan, and the latter was found from leaf litter on the Tian-mu Shan Mts ., both in East China.

Up to the present, fourteen species of the group of *Lathrobium pollens/ brachypterum* have been known from Continental China. Of these, two species were reported by LI and CHEN (1990) from Jilin Province, three by WATANABE and LUO (1992) and WATANABE (1999) from Zhejiang Province, and nine by WATANABE and XIAO (1994, 1996, 1997) from Yunnan Province.

Through the courtesy of Mr. G. DE ROUGEMONT, London, I had an opportunity to examine two apterous *Lathrobium* found in litter layers on two different mountains in Zhejiang Province, East China. One of them, obtained on Mt. Lin-long Shan and Xi Tian-mu Shan, seems to belong to the group of *Lathrobium pollens*, and the other obtained on Mt. Xi Tian-mu Shan to the group of *L. brachypterum*, respectively, in view of similar body size and coloration.

After a careful examination, it has become clear that these species are new to science for reason of the peculiarity of secondary sexual characters of abdominal sternites and configuration of the male genital organ, which are different from those of the known members of the respective groups. They will be described in the present paper.

Before going further, I would like to express my hearty thanks to Dr. Shun-Ichi UÉNO, Visiting Professor at Tokyo University of Agriculture, for his kind advice on the present study. Deep gratitude is also due to Mr. Guillaume DE ROUGEMONT, London, for his kindness in providing me with the specimens used in this study.

Lathrobium (s. str.) ***cooteri*** Y. WATANABE, sp. nov.

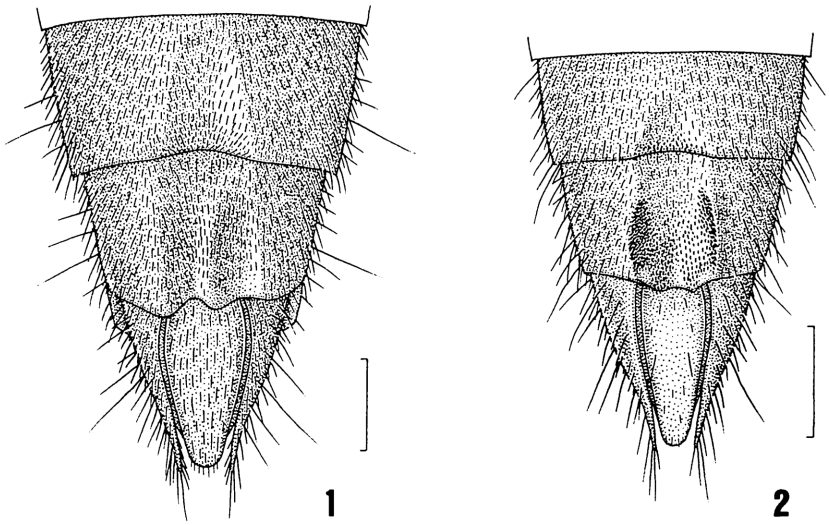
(Figs. 1, 3–5)

Body length: 9.8–10.5 mm (from front margin of head to anal end); 4.1–4.3 mm (from front margin of head to elytral apices).

Body elongate, parallel-sided and somewhat depressed above. Colour brownish black and moderately shining, with labrum, mandibles, antennae except for yellowish apical half of apical segment and elytra reddish brown, palpi, legs and apical segment of abdomen brownish yellow.

Male. Head suborbicular and gently convex medially, slightly transverse (width/length=1.08), widest at posterior third and more strongly narrowed anteriad than posteriad, with lateral sides gently arcuate, frontal area between antennal tubercles transversely flattened and glabrous along frontal margin, bearing a remarkable setiferous puncture inside each antennal tubercle; surface sparingly, coarsely and setiferously punctate, except for almost impunctate vertexal part, the punctures becoming more or less finer and somewhat closer in latero-posterior areas and covered with microscopic coriaceous ground sculpture only visible under high magnification; eyes small and flat, the longitudinal diameter less than one-third as long as each postocular part. Antennae filiform and slender, extending to near the middle of pronotum and not thickened towards the apical segment, two proximal segments polished, 3rd subopaque and the remainings opaque, 1st segment robust and dilated apicad, more than 2.5 times as long as broad, 2nd constricted at the base, about 1.8 times as long as broad, but a half as long as and distinctly narrower than 1st, 3rd somewhat dilated apicad, twice as long as broad, a little longer (3rd/2nd=1.11) than though as broad as 2nd, 4th to 10th almost equal to one another in both length and width, each somewhat dilated apicad, distinctly longer than broad (length/width=1.60) but somewhat shorter (each of 4th to 10th/3rd=0.80) than though as broad as 3rd, 11th fusiform, twice as long as broad, apparently longer (11th/10th=1.25) than though as broad as 10th, subacuminate at the tip.

Pronotum convex and long-oval, distinctly longer than broad (length/width=1.33), more than 1.5 times as long as and somewhat broader (pronotum/head=1.33) than head, widest at anterior fourth and distinctly narrowed posteriad; lateral sides feebly arcuate in dorsal view, anterior margin gently rounded except for median part which is subtruncate, posterior margin nearly straight, anterior angles obtuse and invisible from dorsal side, posterior angles rounded; surface more closely and more coarsely punctate than on head except for a narrow smooth longitudinal space along the median line. Scutellum subtriangular, with only a few minute setiferous punctures and very fine ground sculpture on the surface. Elytra subtrapezoidal and somewhat depressed above, slightly dilated posteriad, a little transverse (width/length=1.15), remarkably shorter (elytra/pronotum=0.65) than though as broad as pronotum; lateral sides nearly straight, posterior margin emarginate and forming an obscure re-entrant angle at the middle; posterior angles broadly rounded; surface more closely with coarser setiferous punctures than those on pronotum. Legs moderately long; profemur remarkably thickened, though strongly constricted near the apex and excavated in apical half on the inner face, so that the anterior part of the excavation forms a subtriangular blunt tooth; protibia somewhat dilated apicad, hollowed in basal half on the inner face and provided with five or so transverse rows of fine comb-like yellowish setae within the hollow; meso- and metatibiae simple; 1st to 4th protarsal segments strongly



Figs. 1–2. Last three abdominal sternites in male of *Lathrobium* (s. str.) spp.; *L.* (s. str.) *cooteri* sp. nov. (1), and *L.* (s. str.) *rougemonti* sp. nov. (2). Scale: 0.5 mm.

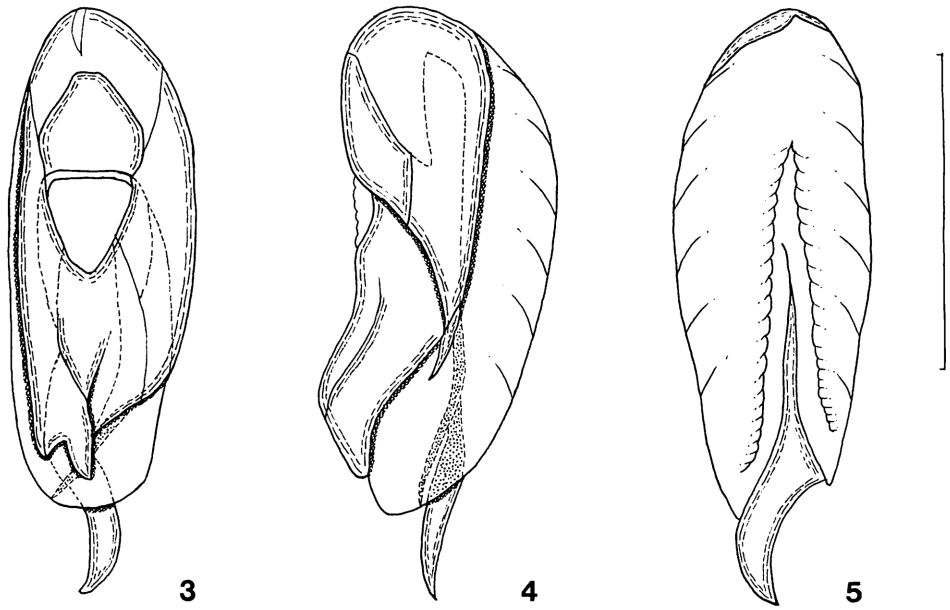
dilated; meso- and metatarsi thin.

Abdomen elongate, widest at 5th segment and more strongly narrowed posteriad than anteriad, 3rd to 6th tergites each transversely and shallowly depressed along the base, moderately closely superficially punctured and covered with fine brownish pubescence; 7th and 8th each more or less sparsely and more roughly punctured than on the preceding tergites; 8th sternites asymmetrically excised at median part of posterior margin and oblongly, shallowly depressed before the excision, surface of the depression weekly longitudinally elevated at the middle before posterior margin; 7th sternite broadly and arcuately emarginate at the middle of posterior margin and long-elliptically depressed at the middle in front of the emargination.

Genital organ elliptical and well sclerotized except for ventral side of median lobe. Median lobe relatively broad, widest near basal third and more strongly narrowed apicad than basad, with a well sclerotized plate at the middle in apical half of ventral side, the ventral plate curved to the left side in apical half and forming a sickle-shape as seen from ventral side. Fused paramere shorter than median lobe and asymmetrical in apical half, deeply excised at the right side near the tip, surface longitudinally carinate at the middle in apical half, the tip of the carina being angulate as seen from dorsal side.

Female. Similar in general appearance to male, though differing from it in the 8th abdominal sternite which is somewhat produced backwards at the middle of posterior margin and rounded at the apex.

Type series. Holotype: ♂, China, Zhejiang Prov., Lin'an County, Lin-long Shan, 22–V–1996, J. COOTER leg. Allotype: ♀, China, Zhejiang Prov., Lin'an County, Xi



Figs. 3–5. Male genital organ of *Lathrobium* (s. str.) *cooteri* sp. nov.; dorsal view (3), lateral view (4), and ventral view (5). Scale: 1.0 mm.

Tian-mu Shan N. R., 16–V–1996, J. COOTER leg. Paratypes: 3♂♂, same data as for the holotype. The type series is deposited in G. DE ROUGEMONT collection with the exception of the holotype which will eventually be deposited in the Natural History Museum, London, and one paratype (♂) preserved in the collection of the Laboratory of Entomology, Tokyo University of Agriculture.

Distribution. China (Zhejiang Prov.).

Remarks. The present new species may belong to the group of *L. pollens* because of having the transverse head and elytra, and conspicuous secondary sexual characters of the abdominal sternites in the male. It can be readily distinguished from the other members of the group by the different secondary sexual character of the abdominal sternites in the male and different configuration of the male genital organ.

Bionomics. The type series was obtained from leaf litter accumulated on the forest floor on Mt. Lin-long Shan only 250 m above sea-level, except for the allotype which was obtained on Mt. Xi Tian-mu Shan N. R.

Etymology. The present new species is named after M. J. COOTER, who collected the type series.

Lathrobium (s. str.) ***rougemonti*** Y. WATANABE, sp. nov.

(Figs. 2, 6-8)

Body length: 5.6–6.5 mm (from front margin of head to anal end); 3.1–3.2 mm

(from front margin of head to elytral apices).

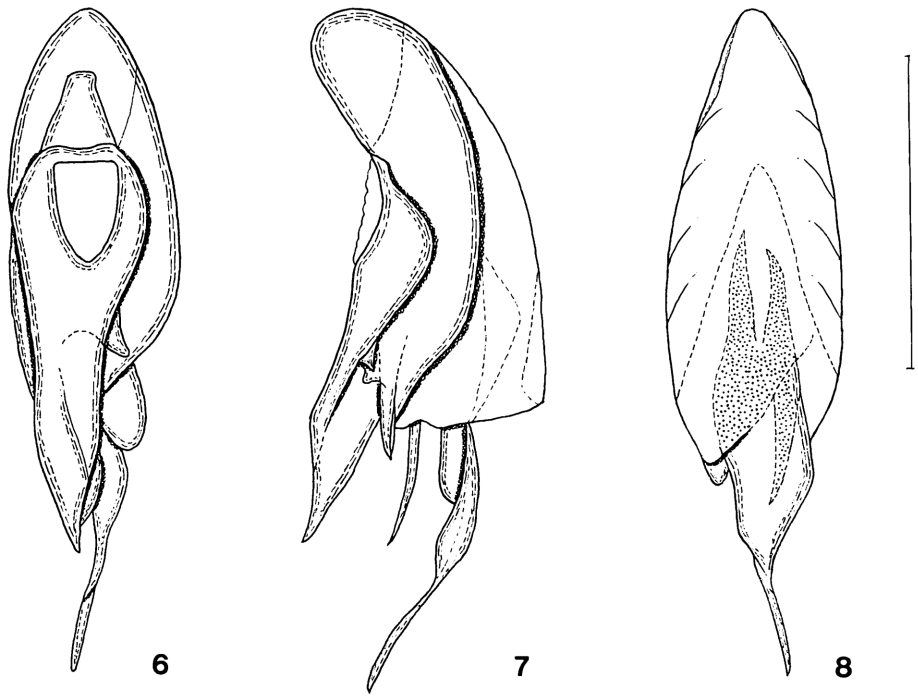
Similar in facies to the preceding species, but can readily be distinguished from it by the much smaller body and different configuration of secondary sexual characters and genital organ in the male.

Body elongate, parallel-sided and subdepressed above, apterous. Colour brownish red and moderately shining, with antennae and apical segment of abdomen brownish yellow, palpi dark yellow.

Male. Head suborbicular and gently elevated medially, slightly transverse (width/length=1.06), widest at posterior fourth and slightly more strongly narrowed anteriad than posteriad, lateral sides arcuate, frontal area transversely flattened and impunctate along frontal margin, with a large setiferous puncture inside each antennal tubercle; surface sparingly scattered with coarse setiferous punctures which are much sparser in the vertexal part and more or less closer and somewhat finer near posterior angles than in other areas, and covered with extremely microscopic coriaceous ground sculpture all over; eyes small and flat, the longitudinal diameter less than one-third as long as each postocular part. Antennae relatively short, not reaching the middle of pronotum and not thickened apicad, two proximal segments polished, 3rd subopaque and the remainings opaque, 1st segment robust and dilated apicad, more than twice as long as broad, 2nd constricted at the base, about 1.5 times as long as broad, considerably shorter (2nd/1st=0.46) and distinctly narrower (2nd/1st=0.79) than 1st, 3rd to 10th equal in width to one another, 3rd somewhat dilated apicad, 1.5 times as long as broad, slightly longer (3rd/2nd=1.09) and somewhat broader (3rd/2nd=1.14) than 2nd, 4th to 10th equal in both length and width to one another, each a little longer than broad (length/width=1.25) but somewhat shorter than 3rd (each of 4th to 10th/3rd=0.83), 11th fusiform, more than twice as long as broad and 1.5 times as long as but slightly narrower than 10th (11th/10th=0.88), acuminate at the tip.

Pronotum convex and oblong though somewhat narrowed posteriad, apparently longer than broad (length/width=1.22), distinctly longer (pronotum/head=1.29) than though as broad as head, widest just behind anterior angles and gradually narrowed posteriad; lateral sides almost straight except near anterior and posterior angles, anterior margin gently arcuate, posterior margin subtruncate, anterior angles obtuse and not visible from above, posterior ones rounded; surface sparingly though more closely and more coarsely punctured than on head except for a narrow smooth longitudinal space along the median line. Scutellum subtriangular, surface almost impunctate though bearing similar ground sculpture to that on head. Elytra subdepressed above and nearly square, slightly dilated apicad, somewhat transverse (width/length=1.19), distinctly shorter (elytra/pronotum=0.73) but slightly narrower (elytra/pronotum=0.95) than pronotum; lateral sides feebly arcuate, posterior margin broadly emarginate at the middle; posterior angles rounded; surface more closely and much more roughly punctured than in pronotum. Legs similar in structure to that of the preceding species.

Abdomen elongate, gradually dilated to 6th segment, and then narrowed towards the anal end; 3rd to 8th tergites each sparingly covered with aciculate punctures and



Figs. 6–8. Male genital organ of *Lathrobium* (s. str.) *rougemonti* sp. nov.; dorsal view (6), lateral view (7), and ventral view (8). Scale: 0.5 mm.

fine brownish pubescence, 9th tergite much more sparsely punctured and pubescent than in the preceding tergites; 8th sternite shallowly and asymmetrically emarginate at the middle of posterior margin, and shallowly and broadly depressed in front of the emargination, surface of the depression provided densely with short rigid blackish setae on latero-posterior parts, and strongly and longitudinally raised at the outer sides of the setose part; 7th sternite shallowly and arcuately emarginate at the middle of posterior margin and subtriangularly depressed before the emargination, surface of the depression with similar setae to those on 8th sternite at the middle of posterior part.

Genital organ spindle-shaped and well sclerotized except for ventral side of median lobe. Median lobe widest near the middle and narrowed both basad and apicad, with a ventral sclerite abruptly narrowed in apical fourth. Fused paramere nearly symmetrical, considerably shorter than median lobe, somewhat constricted near the middle and dilated basad, though narrowed towards the pointed apex.

Female. Resembles male in facies, though differing from it in the 7th and 8th abdominal sternites which are not modified.

Type series. Holotype: ♂, allotype: ♀, China: Zhejiang Prov., Lin'an County, Xi Tian-mu Shan N. R., 18–V–1996, J. COOTER leg. Paratypes, 2♂♂, 1♀, same data as for the holotype; 2♂♂, 1♀, same locality and collector as the holotype, 16–V–1996; 1♂,

1♀, China: Zhejiang Prov., Tian-mu Shan, 29–IV–1993, G. DE ROUGEMONT leg. The type series is deposited in G. DE ROUGEMONT collection with the exception of the holotype which will eventually be deposited in the Natural History Museum, London, and four paratypes (3♂♂, 1♀) preserved in the collection of the Laboratory of Entomology, Tokyo University of Agriculture.

Distribution. China (Zhejiang Prov.).

Remarks. In general appearance and body size, this new species somewhat resembles *L.* (s. str.) *tamurai* Y. WATANABE et LUO (1992) from Wu-yan-ling in Zhejiang Prov., but differs from it in the following points: head suborbicular and gently convex medially, pronotum as broad as head and apparently narrowed posteriad, 8th abdominal sternite provided with short rigid blackish setae on the surface of medio-posterior depression, and different configuration of male genital organ.

Bionomics. The type series was found in leaf litter accumulated at two different spots, 700 m and 1,000 m in altitude, on Mt. Xi Tian-mu Shan.

Etymology. The specific epithet of the present new species is given after Mr. G. DE ROUGEMONT, who collected a part of the type series.

要　　約

渡辺泰明：中国浙江省から採集されたコバネナガハネカクシ／ヒメコバネナガハネカクシ種群の2新種．—— 中国からはこれまで，コバネナガハネカクシ／ヒメコバネナガハネカクシ種群に含まれる14種が知られているが，それらのうちの3種が浙江省から報告されている．私は最近，ロンドン在住のGuillaume DE ROUGEMONT氏のご厚意によって，浙江省の西天目山および礼竜山から採集されたこの種群に含まれる2種を検討することができたが，これらの2種はいずれも新種と判明したので，下記のように命名して記載した．

1．*Lathrobium* (s. str.) *cooteri* Y. WATANABE

礼竜山の標高250mの地域に堆積した落葉層および西天目山で採集された本種は，体長，概形および雄の腹部に顕著な第二次性徴が認められることから，コバネナガハネカクシ種群に含められる．しかしながら，雄腹部の第二次性徴および交尾器の側葉は特異な形状を呈し，この種群に含まれる他の種から容易に区別される．

2．*Lathrobium* (s. str.) *rougemonti* Y. WATANABE

天目山地の標高700 mおよび1,000 m付近に堆積した落葉層から得られた本種は，前種よりはるかに小型で，ヒメコバネナガハネカクシ種群に含まれる．色彩および概形は，浙江省の烏岩嶺から採集された個体に基づいて記載された*L.* (s. str.) *tamurai*に類似しているが，頭部はより円形であること，前胸背板は頭部と同じ幅で，後方に向かって明らかに狭まること，雄の腹部の第二次性徴および交尾器の形状が明らかに異なることで，この種群の他の種から区別される．

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Elytra, Tokyo, **27** (2): 580, November 13, 1999

New Records of Staphylinid Beetles (Coleoptera) from Take-shima Island of the Ôsumi Islands in Kagoshima Prefecture, Japan

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So far as known to the authors, no staphylinid beetles have hitherto been recorded from Take-shima Island of the Ôsumi Islands in Kagoshima Prefecture, Japan.

Two species of staphylinid beetles were collected by one of the authors, S. ONODA, from Take-shima Island on September 7, 1994, as recorded below.

1. *Anotylus lewisius* (SHARP), 1♂, 2♀♀.
2. *Cilea silphoides* (LINNÉ), 1♂, 1♂.

Elytra, Tokyo, **27** (2): 581–597, November 13, 1999

Some Species of the Genus *Trichotichnus* from Sichuan, Southwest China (Coleoptera, Carabidae, Harpalini)[1)]

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Abstract Four new species of the harpalid genus *Trichotichnus* are described from western and southern Sichuan, Southwest China, under the names *T. curticornis*, *T. satoi*, *T. calathiformis* and *T. gracilitibialis*. The first three belong to the subgenus *Amaroschesis*, the third one being related to *T. notabilangulus* and the other two to *T. obtusicollis* which is redescribed on the basis of the type series. The fourth species belongs to the subgenus *Trichotichnus* (s. str.) and is a member of the *longitarsis* group.

Many species of the genus *Trichotichnus* MORAWITZ, 1864, have been described mainly from Sichuan and Yunnan in China (TSCHITSCHÉRINE, 1897, 1906; SCHAUBERGER, 1936; ITO 1998 a, c, 1999; KATAEV & ITO, 1999, in press), most of them belonging to the subgenus *Amaroschesis* TSCHITSCHÉRINE 1898. These species have rudimentary hind wings and the distributional ranges are limited to so narrow areas that their speciation seems to heve become much accelerated.

Recently I was able to examine numerous specimens of the tribe Harpalini collected by several expeditions to Sichuan made by Dr. Shun-Ichi UÉNO, Dr. Masataka SATÔ and Dr. Shûhei NOMURA, and found some new trichotichine species among them.

In this paper, I am going to describe four new species of the genus *Trichotichnus* under the names *Trichotichnus* (*Amaroschesis*) *curticornis*, *T.* (*A.*) *satoi*, *T.* (*A.*) *calathiformis* and *T.* (*Trichotichnus*) *gracilitibialis* and also to redescribe *Trichotichnus* (*Amaroschesis*) *obtusicollis* SCHAUBERGER, 1936. *Trichotichnus calathiformis* is peculiar in having the stylus of female genitalia with two spines along each external margin, since the spine is usually single in the genus. In the species of *Trichotichnus* from Sichuan and Yunnan, usually stable characteristics of the genus are often changeable.

Before going further, I wish to express my special gratitude to Dr. S.-I. UÉNO of the National Science Museum, Tokyo for his kindly giving me the opportunity to examine numerous materials collected by him and Dr. S. NOMURA. I must cordially thank Dr. Fritz GUSENLEITNER of the Oberösterreichisches Landesmuseum, Linz, for a long loan of SCHAUBERGER's types under his care. Also I would like to thank Dr. M. SATÔ of

1) This study is supported in part by the Grant-in-Aid No. 07041131 for Field Research of the Monbusho International Scientific Research Program, Japan.

Nagoya Women's University, Nagoya, for a kind loan of his collectings. Further my thanks are due to Mr. Taichi SHIBATA, Nishinomiya for his continuous guidance to my taxonomic study.

All the holotypes of the new species to be described will be preserved in the National Science Museum (Nat. Hist.), Tokyo. Concerning the measurement of each body part, see ITO (1998 b).

Abbreviations of the Depository

NSMT: collection of the National Science Museum (Nat. Hist.), Tokyo.
NWU: collection of Nagoya Women's University, Nagoya.
NI: the present author's collection, Kawanishi.

Trichotichnus (*Amaroschesis*) *obtusicollis* SCHAUBERGER, 1936

(Figs. 1, 6 and 11–A)

Trichotichnus obtusicollis SCHAUBERGER, 1936, Kol. Rdsch., **21**: 11, 14–15.

Body oblong, comparatively elongate, convex, black, shiny, not iridescent; head slightly brownish from frons to vertex; labial palpi, antennae and tarsi dark reddish brown.

Head large, 0.70–0.71 times as wide as the width of head, with wide interocular space seven-tenths the greatest width, rather strongly elevated in vertex, very sparsely punctulate; labrum not or shallowly emarginate; clypeus transversely and weakly swollen in basal half in the holotype and almost flat in the cotype [paralectotype], with weakly produced apical corners; clypeal suture very fine and shallow throughout; frontal impressions shallow, engraved like fovea, obliterated in basal halves; eyes large and gently convex; temples short, one-fourth as long as eye length; genuine ventral margin of eye widely isolated from buccal fissure; mandibles robust, left mandible vertically truncate at apex, roundedly and weakly produced at terebral tooth and sharply so at retinacular tooth, right one pointed at apex, very slightly produced and arcuate at terebral tooth and widely blunt-triangular at retinacular tooth; antennae weakly moniliform, short, surpassing a little beyond pronotal base, 3rd segment pubescent in apical two-thirds, 1.08–1.18 times as long as the 4th and about twice the 2nd; 3rd segment of labial palpus slender, very sparsely pubescent and as long as the 2nd; ligula shallowly emarginate at sides, acutely produced at apical corners, and with truncate apex; paraglossae narrow, prolonged a little beyond ligula; mentum bearing clear suture with submentum, epilobes weakly expanded apicad, median tooth wide and pointed at apex; microsculpture partly absent, observed as somewhat clear isodiametric and transverse meshes.

Pronotum subquadrate, widest at apical two-fifths, a little more than one and two-fifths as wide as long (1.44–1.46 in ratio), widely and gently convex, the convexity closely approaching lateral borders; sides gently curved inwards and slightly arcuately

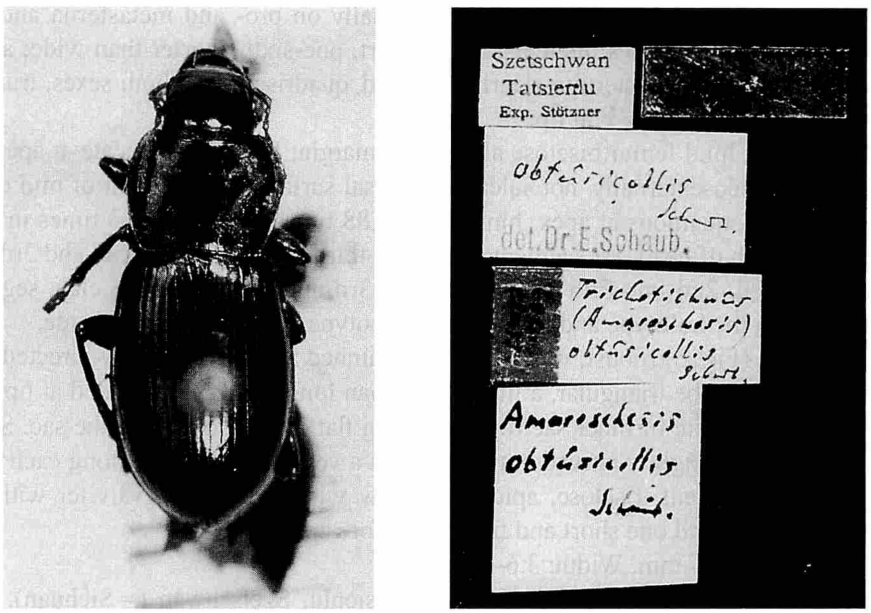


Fig. 1. Habitus and labels of *Trichotichnus* (*Amaroschesis*) *obtusicollis* SCHAUBERGER, 1936 (holotype).

convergent backwards from the widest point; apex uniformly emarginate, entirely bordered; base about one-tenth wider than apex, shallowly emarginate, hardly arcuate at sides, thickly bordered lengthwise as lateral borders; apical angles rather protrudent, more or less widely rounded; basal angles not angulate, larger than rectangle; lateral furrows each engraved in a line, slightly widened only near base, isolated from small basal fovea by a weak swelling; front transverse impression very shallow, though not invisible like the hind one; median line fine, shallow, and lying between the two impressions; surface mostly impunctate, sparsely punctate in lateral furrows and basal foveae; microsculpture partly carved on disc, clear in lateral furrows and basal foveae, composed of a mixture of transverse and isodiametric meshes.

Elytra oblong-oval, about a half longer than wide (1.51–1.53 in ratio), almost flat on disc, steeply declivous laterad and apicad, very spearsely and minutely punctate; sides gently curved at humeri, weakly rounded in middle, and hardly sinuate before apices, which are rounded, widely separated from each other and not angulate at sutural angles; bases emarginate; humeral angles rounded; striae narrow and shallow throughout, finely crenulate, scutellar striole short; intervals wholly flat, dorsal pore on 3rd interval located a little behind apical two-fifths; marginal series continuous or narrowly interrupted medially, composed of 20–21 umbilicate pores; microsculpture detectable as clear transverse meshes. Hind wings extremely reduced, 0.19 times as long as elytra.

Ventral surface mostly smooth, very sparsely punctate in lateral areas of metaster-

num and metepisterna, sparsely pubescent medially on pro- and metasterna and 2nd and 3rd abdominal sternites; metepisternum short, one-sixth shorter than wide; apical margin of 6th abdominal sternite clearly bordered, quadrisetose in both sexes, truncate in ♂ and clearly arcuate in ♀ at tip.

Legs short; hind femur bisetose along hind margin; fore tibia truncate at apex, bi- or trispinous apico-externally, not sulcate on dorsal surface; 1st segment of mid tarsus in ♂ biseriately squamous at apex, hind tarsus 0.88 times in ♂ and 0.73 times in ♀ as long as the width of head, 1st segment about two-thirds as long as the 2nd and 3rd segments combined, 2nd one-fifth longer than the 3rd and twice the 4th, claw segment quadrisetose in the holotype and trisetose in the cotype along each ventral side.

Aedeagus (Fig. 6) robust, weakly arcuate, thinned at apex, obliquely directed ventrad at tip; apical lobe triangular, a little wider than long, narrowly rounded at tip; apical lobe wide, sclerite of inner sac rounded, lying flat on the surface of the sac. Stylus (Fig. 11–A) short, slightly curved outwards, with a very minute spine along each outer margin; basal segment trisetose, apico-externally with short hairs; valvifer with two long setae at apex and one short and fine seta before apex.

Length: 9.4–9.7 mm. Width: 3.6–3.8 mm.

Specimens examined. 1♂ (holotype), Tatsienlu, Szetschwan (=Sichuan), Exp. Stötzner; 1♀ (cotype), same data as the holotype. (All the types are preserved in the Oberösterreichisches Landesmuseum, Linz)

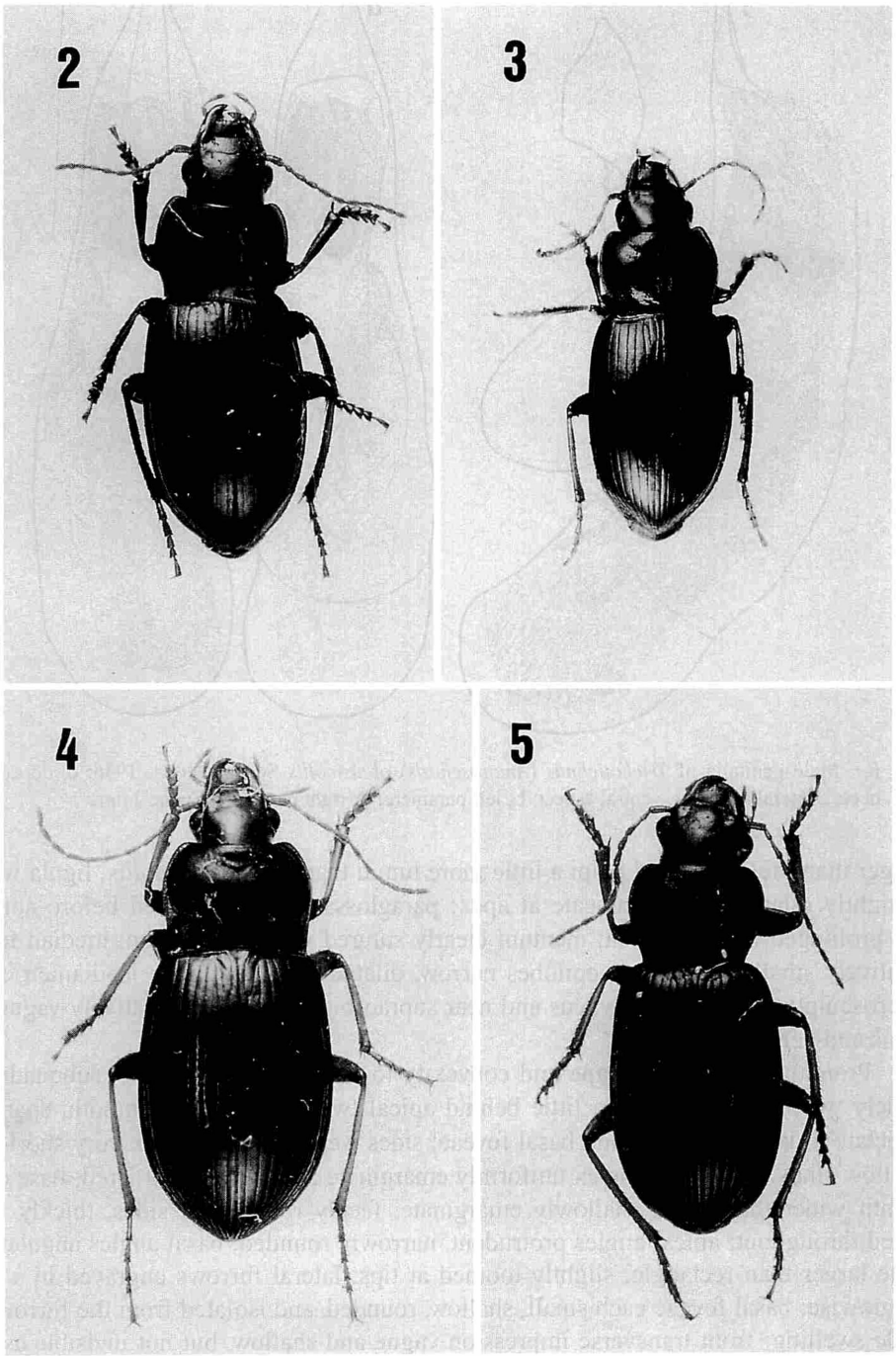
Trichotichnus* (*Amaroschesis*) *curticornis N. ITO, sp. nov.

(Figs. 2, 7 and 11–B)

Body similar in shape to that of *T.* (*A.*) *obtusicollis* SCHAUBERGER, 1936, oblong, black, shiny, but somewhat opaque on elytra; palpi light brown, 3rd to 11th antennal segments and tarsi dark reddish brown, the remaining segments blackish.

Head wide, 0.69–0.74 times as wide as the pronotal width, rather well convex, sparsely punctulate, with wide interocular space 0.76–0.78 times as wide as the width of head; labrum widely rounded and weakly produced at apical corners; clypeus not or weakly depressed in apical third, shallowly emarginate at apex; clypeal suture fine, obscurer than in *T. obtusicollis*, sometimes reduced at sides; frontal impressions also obscure, engraved like fovea; eyes weakly convex; temples short, a little less than two-fifths of eye length; genuine ventral margin of eye widely separated from buccal fissure; mandibles robust, left mandible vertically truncate at apex, weakly produced at terebral tooth and sharply and minutely so at retinacular tooth, right one sharpened at apex and triangularly produced only at retinacular tooth, with indistinct terebral tooth; antennae short, not reaching pronotal base, 3rd segment as long as the 4th and a half

Figs. 2–5. Habitus of *Trichotichnus* spp. —— 2, *Trichotichnus* (*Amaroschesis*) *curticornis* N. ITO, sp. nov.; 3, *T.* (*A.*) *satoi* N. ITO, sp. nov.; 4, *T.* (*A.*) *calathiformis* N. ITO, sp. nov.; 5, *T.* (s. str.) *gracilitibialis* N. ITO, sp. nov.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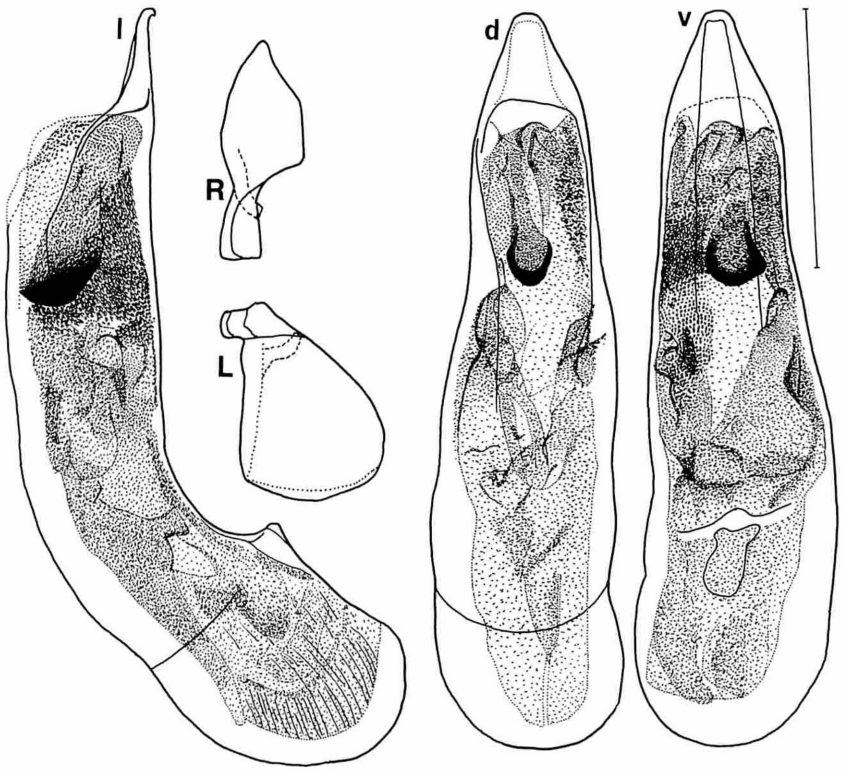

Fig. 6. Male genitalia of *Trichotichnus* (*Amaroschesis*) *obtusicollis* SCHAUBERGER, 1936; d, dorsal aspect; l, lateral aspect; v, ventral aspect; L, left paramere; R, right paramere. Scale: 1 mm.

longer than the 2nd; labial palpi a little more tumid than in *T. obtusicollis*; ligula wide, straightly dilated distad, truncate at apex; paraglossae narrow, curved before apices, not prolonged beyond ligula; mentum clearly sutured with submentum, median tooth relatively small and narrow, epilobes narrow, dilated apicad; surface isodiametrically microsculptured, clear on clypeus and near supraorbital pores, and relatively vague on frons and vertex.

Pronotum similar in shape and convexity to that of *T. obtusicollis*, subquadrate, widely well convex, widest a little behind apical two-fifths, mostly smooth, sparsely punctate in lateral furrows and basal foveae; sides weakly arcuate, with very short and shallow sinus before base; apex uniformly emarginate and entirely bordered; base one-eighth wider than apex, shallowly emarginate, feebly rounded at sides, thickly bordered throughout; apical angles protrudent, narrowly rounded; basal angles angulate, a little larger than rectangle, slightly toothed at tips; lateral furrows engraved in a line lengthwise; basal foveae each small, shallow, rounded, and isolated from the furrow by wide swelling; front transverse impression vague and shallow, but not invisible as the hind one; median line reaching both apex and base, or sometimes reduced near apex;

microsculpture clear, visible as isodiametric meshes.

Elytra oblong-oval, short, about two-fifths longer than wide (1.38–1.43 in ratio), steeply declivous laterad and apicad, not punctate; sides gently rounded in humeri, weakly curved in middle, rather strongly arcuate in apical third, with very shallow subapical sinus; apices widely rounded, narrowly separated from each other, angulate at sutural angles; bases shallowly emarginate, very obtuse and angulate at humeral angles; striae fine and shallow throughout, finely crenulate, scutellar striole short; intervals flat even in lateral and apical portions, dorsal pore on 3rd interval situated at a little before apical third; marginal series continuous or narrowly interrupted medially, composed of 19–21 umbilicate pores; microsculpture observed as clear transverse meshes. Hind wings fully reduced, one-seventh of the elytral length.

Ventral surface mostly impunctate, with several obscure punctures on lateral portions of metasternum and metepisterna, sparsely covered with short pubescence medially on pro- and metasterna and 2nd and 3rd abdominal sternites; metepisternum one-fifth shorter than wide; 6th abdominal sternite in both sexes bisetose on each side, feebly arcuate in ♂ and widely so in ♀ at distal margin.

Hind femur bisetose along hind margin; fore tibia relatively dilated distad, truncate at apex, not sulcate on dorsal surface, trispinous apico-externally; tarsi rather short, 1st segment of mid tarsus in ♂ biseriately squamose in apical half, hind tarsus about four-fifths in ♂ and seven-tenths in ♀ as long as the width of head, 1st segment three-fifths as long as the 2nd and 3rd combined together, 3rd about one-fourth shorter than the 2nd and a half longer than the 4th, claw segment trisetose ventrally at each side.

Aedeagus (Fig. 7) not robust, clearly curved behind basal bulb, thence almost straightly prolonged towards apex, which is thinned distad and ventro-obliquely at tip; apical orifice widely open, inner sac without armature; apical lobe elongate-triangular, rounded at distal margin; ventral surface bordered at sides. Stylus (Fig. 11–B) short, stout, weakly curved outwards, bearing a spine at middle of each external margin and a short seta near apex; basal segment trisetose apico-externally; valvifer bisetose at apex.

Length: 8.1–8.9 mm. Width: 3.4–3.6 mm.

Holotype: ♂, Mt. Wahui Shan, 3,940 m, Dichi Shan Mts., Jiulong Xian, western Sichuan, China, 29–IX–1996, S.-I. UÉNO leg. Paratypes: 3♂♂, same data as the holotype; 1♂, same locality as the holotype, 28–IX–1996, M. SATÔ leg.; 2♂♂, 1♀, Mt. Wahui Shan, 3,940 m, Dichi Shan Mts., Jiulong Xian, W. Sichuan, China, 28–IX–1996, S. NOMURA leg. (preserved in NSMT, NWU and NI).

As compared with *T.* (*A.*) *obtusicollis*, this new species is smaller in the size of body, with the basal angles of pronotum angulate instead of being rounded, and the humeral angles of elytra not rounded.

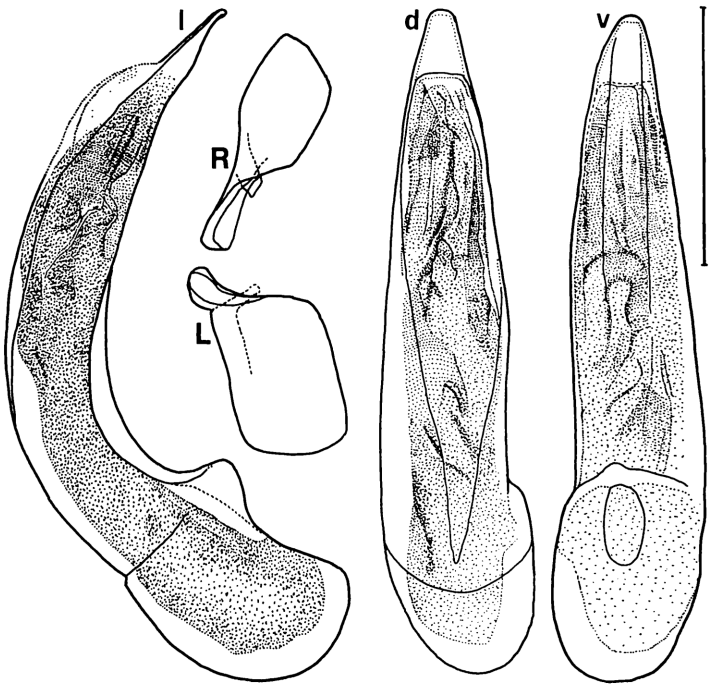

Fig. 7. Male genitalia of *Trichotichnus* (*Amaroschesis*) *curticornis* N. ITO, sp. nov.; d, dorsal aspect; l, lateral aspect; v, ventral aspect; L, left paramere; R, right paramere. Scale: 1 mm.

Trichotichnus (*Amaroschesis*) *satoi* N. ITO, sp. nov.

(Figs. 3, 8 and 11–C)

Body oblong, thick, black, shiny, but the elytra are rather opaque due to clear microsculpture, without iridescent lustre; palpi and antennae light brown, mandibles dark reddish brown, tibiae and tarsi brown, femora blackish brown.

Head convex, not punctate, transversely rugose on frons, moderate in width, 0.64–0.68 times as wide as the pronotal width, with wide interocular space three-fourths the width of head; labrum weakly narrowed forwards, roundly produced at apical corners; clypeus thick, transversely depressed in apical third, with shallowly emarginate apex; clypeal suture obscurely carved or obliterated; frontal impressions shallowly engraved in apical half, reduced near supraorbital grooves; eyes long and not convex; temples thin and weakly sloped; genuine ventral margin of eye widely isolated from buccal fissure; antennae slender, short, reaching basal tenth of elytra, 3rd segment pubecsent in apical half, slightly longer than the 4th (1.04–1.12 in ratio) and two-thirds longer than the 2nd; mandibles gently curved before apices, which are blunt, terebral tooth of left mandible small and rounded and that of right one indistinct and widely arcuate, retinacular tooth of left one widely and triangularly protrudent and that of right

one narrowly triangular; ligula weakly and straightly expanded distad, truncate at apex; paraglossae narrow, prolonged forwards beyond ligula; epilobes of mentum narrow, weakly widened apicad; microsculpture relatively clear, composed of isodiametric meshes.

Pronotum subquadrate, gently rounded at sides, which are hardly sinuate before base, widest a little before middle, about two-fifths wider than long, steeply declivous apico-laterad; surface mostly smooth on disc, sparsely and moderately punctate in lateral furrows and basal foveae; apex moderately emarginate, not interrupted at border; base shallowly emarginate, subarcuately oblique at sides, with entire border; apical angles produced, narrowly rounded; basal angles angulate, a little larger than rectangle, and with blunt tooth at each tip; lateral furrows very narrow in apical third, thence gradually widened behind, and linked with basal foveae; basal foveae shallow, transverse, and longitudinally grooved in the middle; front transverse impression rather clear, hind transverse one very shallow; median line fine but clear, reduced near apex and base; microsculpture clearly detectable, consisting of mixture of square and isodiametric meshes.

Elytra elliptical, about a half longer than wide (1.46–1.50 in ratio), abruptly sloping towards sides and apices, not or very sparsely punctate; sides gently arcuate at humeri, hardly sinuate before apices; apices separately and narrowly rounded, blunt at sutural angles; bases emarginate, subrectangularly meeting with lateral borders; striae fine, shallow, gradually becoming a little deeper laterad and apicad, clearly crenulate, scutellar striole short; intervals flat, dorsal pore of 3rd interval situated near apical two-fifths and adjoining 2nd stria; marginal series widely interrupted in middle, anterior group composed of 7–8 umbilicate pores, and posterior group of 7–9 pores; microsculpture observable as transverse meshes. Hind wings fully reduced, a little shorter than one-fifth the elytral length.

Ventral surface impunctate, furnished with short pubescence medially on pro- and metasterna and on 2nd and 3rd sternites; metepisternum short, 0.71–0.76 times as long as wide; apical margin of 6th abdominal sternite in ♂ bisetose and subtruncate at tip, and in ♀ quadrisetose and widely rounded.

Legs short; hind femur bisetose along hind margin; fore tibia weakly dilated distad, not incised in external half of apex, apico-externally armed with three short spines; mid tarsus in ♂ with biseriate adhesive squamae at apex, hind tarsus 0.94–0.96 times in ♂ and 0.74–0.79 times in ♀ as long as the width of head, 1st segment short, about three-fourths as long as the 2nd and 3rd taken together, 2nd three-tenths longer than the 3rd and about twice the 4th, claw segment trisetose along each ventral margin.

Aedeagus (Fig. 8) gently arcuate, gradually tapered distad, sharply reflexed dorsad at apex, with large basal bulb; apical orifice narrow, widely open only near apex, inner sac without sclerite; apical lobe subsquare, truncate at tip; ventral surface bordered at sides. Stylus (Fig. 11–C) robust, with a very minute spine only at dorso-external margin; basal segment bearing a short seta at apico-external corner; valvifer bisetose at apex.

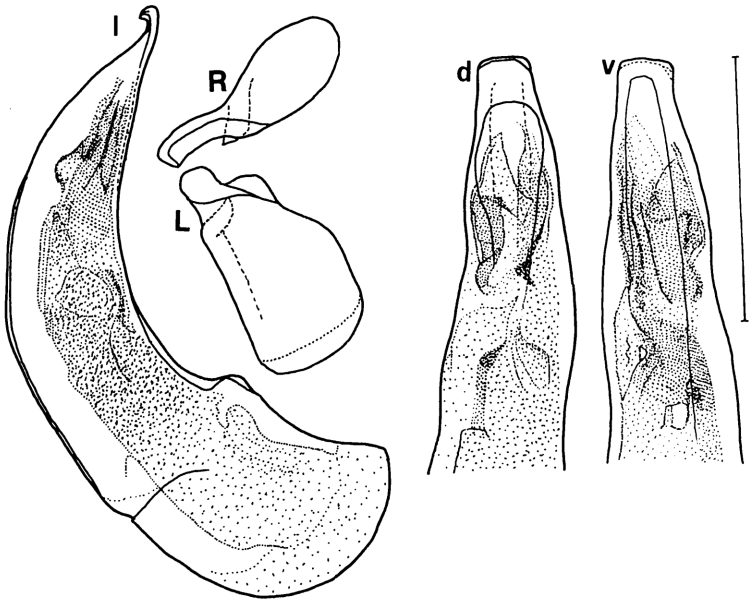

Fig. 8. Male genitalia of *Trichotichnus* (*Amaroschesis*) *satoi* N. ITO, sp. nov.; d, dorsal aspect; l, lateral aspect; v, ventral aspect; L, left paramere; R, right paramere. Scale: 1 mm.

Length: 7.6–9.0 mm. Width: 3.1–3.8 mm.

Holotype: ♂, Waze, 3,410 m, Kangding Xian, western Sichuan, China, 27–IX–1996, M. SATÔ leg. Paratypes: 13♂♂, 2♀♀, same data as the holotype; 3♂♂, Mt. Wahui Shan, 3,930 m, Dichi Shan Mts., Jiulong Xian, western Sichuan, China, 28–IX–1996, M. SATÔ leg.; 2♂♂, ditto, S.-I. UÉNO & L. ZHAO leg. (preserved in NSMT, NWU and NI).

This new species is similar to *T.* (*A.*) *obtusicollis*, but the dorsal microsculpture is clearer, the apical angles of pronotum are more narrowly arcuate and the basal ones are not rounded, and the humeral angles of elytra are angulate instead of being blunt.

The new species is also allied to the previous new species, but is different from the latter in having the baso-lateral parts of pronotum not swollen, the hind tarsi a little longer, and the apical margin of the 6th abdominal sternite not quadrisetose.

Trichotichnus (*Amaroschesis*) *calathiformis* N. ITO, sp. nov.

(Figs. 4, 9 and 11–D)

Body rather flattened, resembling in shape those of the species of the genus *Calathus* BONELLI, black to dark reddish brown, shiny, iridescent on elytra; palpi, antennae and legs light reddish to yellowish brown, mandibles and labrum dark brown to reddish brown.

Head relatively small, less than two-thirds the width of pronotum (0.63–0.65 in

ratio), minutely and very sparsely punctate, gently convex, with interocular space wide and about seven-tenths the width of head including eyes; labrum weakly narrowed apicad, emarginate at apex; clypeus almost flat or weakly and transversely swollen in basal two-thirds, with subtruncate apex; clypeal suture fine and shallow throughout; frontal impressions vague, engraved only in apical halves, reduced before eyes; temples not or somewhat swollen, obtusely meeting with neck constriction, about one-fourth the eye length; genuine ventral margin of eyes widely separated from buccal fissure; mandibles more or less shapened at apices, terebral tooth of the left mandible small and rounded and of the right one not produced, retinacular tooth of left one small and triangular and of the right one large and arcuate; antennae slender, comparatively longer than in ordinary species of the subgenus, 3rd segment as long as the 4th and five-eighths longer than the 2nd; labial palpi slender, 3rd segment as long as the 2nd; ligula wide, divergent distad, truncate at apex, widely separated from paraglossae, which are slightly prolonged beyond it; mentum clearly sutured with submentum, epilobes narrow and parallel-sided, median tooth rounded; microsculpture relatively clear, composed of mixtures of isodiametric and square meshes.

Pronotum subtrapezoidal, widest a little before apical two-fifths, about two-fifths wider than long (1.42–1.45 in ratio), almost flattened on disc, gently declivous apicolaterad, smooth on disc, rather coarsely and sparsely punctate in lateral furrows and basal foveae and finely so in apical portion; sides moderately and roundedly convergent apicad and weakly so basad from the widest point, widely sinuate before base; apex deeply emarginate; base much wider than apex, 1.40–1.46 times as wide as apex, shallowly emarginate; apical angles well produced and narrowly rounded; basal angles triangularly produced latero-posteriad, smaller than rectangle; lateral furrows narrow in front, gradually widened behind from near middle; basal foveae each shallow, isolated from the furrow by weak swelling; front transverse impression obscure to rather clear; hind transverse one very shallow; median line fine but clear, obsolete before apex and base; microsculpture finely and clearly impressed, observable as mixtures of isodiametric, square and transverse meshes.

Elytra oval, widest at middle, 1.43–1.50 times as long as wide, uniformly and weakly elevated, not or very sparsely punctulate; sides weakly arcuate at humeri, with very shallow subapical sinus; apices rounded and rather widely separated from each other; bases not emarginate, weakly oblique latero-anteriad, obtusely and angularly meeting with lateral borders; striae fine, shallow on disc, slightly deepened laterally and apically, finely and clearly crenulate, scutellar striole long, though rather short in several examples; intervals not convex, dorsal pore of 3rd interval situated between middle and apical two-thirds and adjoining 2nd stria; marginal series continuous, composed of 21–27 umbilicate pores; microsculpture detectable as very vague transverse lines. Hind wings reduced, one-fifth of the elytral length.

Ventral surface mostly smooth, minutely and sparsely punctate on prosternum, pro- and metepisterna, and metasternum, with sparse and very short pubescence medially on prosternum and 2nd and 3rd abdominal sternites; metepisternum subsquare,

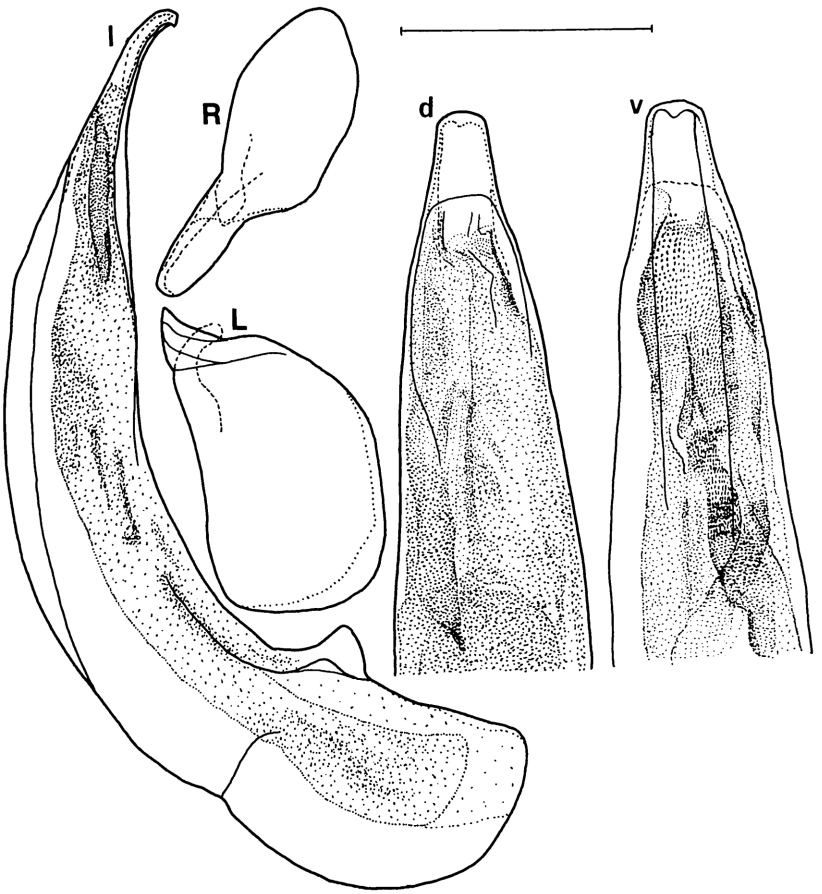

Fig. 9. Male genitalia of *Trichotichnus* (*Amaroschesis*) *calathiformis* N. Ito, sp. nov.; d, dorsal aspect; l, lateral aspect; v, ventral aspect; L, left paramere; R, right paramere. Scale: 1 mm.

one-ninth shorter than wide; 6th abdominal sternite unisetose in ♂ and bisetose in ♀ on each side, truncate in ♂ and narrowly rounded and produced in ♀ at apex.

Legs rather long than usual; mid coxa densely setose along outer margin; hind femur bisetose along hind margin; fore tibia not incised at external margin, bi- or trisetose along apico-external margin, dorsally without sulcus; hind tarsus one-fifth in ♂ longer than and in ♀ as long as the width of head, 1st segment about 0.7 times as long as the 2nd and 3rd taken together, 3rd three-tenths shorter than the 2nd and two-sevenths longer than the 4th, claw segment trisetose along each ventral margin.

Aedeagus (Fig. 9) robust, clearly arcuate, gradually thinned distad; apex directed ventrad, truncate at tip, with a slight hook; apical lobe trapezoidal, weakly arcuate at tip; apical orifice wide, inner sac without any armature; ventral surface bordered at sides, weakly depressed. Stylus (Fig. 11–D) slender, weakly curved, with two short

setae along each external margin.

Length: 10.6–11.6 mm. Width: 4.5–4.9 mm.

Holotype: ♂, Dafengding, 2,320 m, Daliang Shan Mts., Wahei Xiang, Meigu Xian, S. Sichuan, China, 6–X–1997, S.-I. UÉNO leg. Paratypes: 5♂♂, 7♀♀, same data as the holotype (preserved in NSMT and NI).

This new species is related to *T.* (*A.*) *notabilangulus* N. ITO, 1998, but is easily distinguishable from the latter by the legs lighter in color, the pronotum much wider at the base, the elytra iridescent, and so on.

This new species is peculiar in having the stylus bisetose along each external margin. In the Sichuanese species of the genus *Trichotichnus*, such usually stable characters as the number of setae on the pronotum, the presence of elytral dorsal pore and the number of the external marginal setae of the stylus vary rather frequently. Similar phenomenon is also observed in the genus *Chydaeus*, and was repeatedly noticed by UÉNO in the subfamily Trechinae. Such an instability may be attributable to the oldness of the fauna, and suggests flexibility to promote intensive speciation in the region.

Trichotichnus (s. str.) ***gracilitibialis*** N. ITO, sp. nov.

(Figs. 5, 10 and 11–E)

Body oblong, slightly brownish black to black, shiny, with iridescent lustre on elytra; palpi, antennae and legs light brown, labrum and mandibles dark reddish brown, blackish brown to black.

Head large, 0.69–0.73 times as wide as pronotal width, weakly convex, somewhat coarsely and rather densely punctate, with narrow interocular space about seven-tenths the width of head; labrum subsquare, shallowly emarginate at apex; clypeus triangularly protrudent at apical corners, straight between them, widely bordered along apex, with short longitudinal rugosities behind the border; clypeal suture clear and rather deep (shallow in one example); front transverse impressions arcuately divergent, gradually becoming shallower behind, though not reduced near supraorbital grooves; eyes large, rather prominent; temples short, one-seventh the eye length; genuine ventral margin of eye narrowly separated from buccal fissure; mandibles stout, gently curved inwards, terebral tooth of left mandible weakly produced and subtruncate at apex, and that of right one indistinct, retinacular tooth of left one roundly protrudent and that of right one narrowly and rather strongly so; antennae slender, relatively long, a little surpassing basal tenth of elytra, 3rd segment hardly dilated distad, pubescent in apical three-fifths, slightly longer than the 4th and twice the 2nd; labial and maxillary palpi slim; ligula wide, expanded distad before apex, which is hardly bisinuate; paraglossae narrow, separated in the expanded portion, not prolonged beyond ligula; mentum transverse, epilobes widened apicad, median tooth low and wide; microsculpture partly and vaguely visible as transverse meshes.

Pronotum not transverse, 1.35–1.38 times as wide as long, rather strongly narrowed behind, widest at apical two-fifths, well convex; sides clearly arcuate apicad and

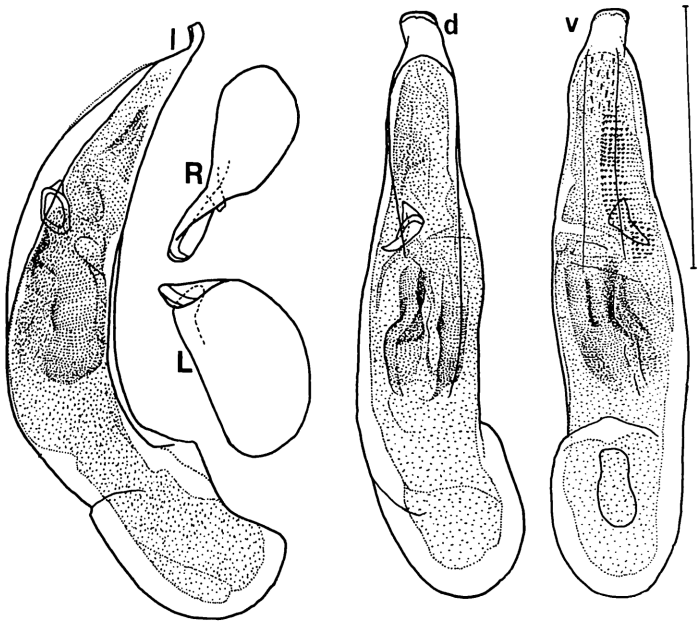

Fig. 10. Male genitalia of *Trichotichnus* (s. str.) *gracilitibialis* N. Ito, sp. nov.; d, dorsal aspect; l, lateral aspect; v, ventral aspect; L, left paramere; R, right paramere. Scale: 1 mm.

straightly oblique basad from the widest point, not or hardly sinuate before base; apex straight or slightly emarginate, brokenly bordered in the middle; base as wide as apex, truncate, thickly bordered throughout; apical angles not protrudent, narrowly rounded; basal angles angulate, relatively larger than rectangle (about 150°), with very minute tooth at each tip; lateral furrows narrow, gradually widened backwards, merging into basal foveae, which are large, shallow and ill-defined; front and hind transverse impressions obscure; median line fine, clear (somewhat vague in one example), reaching both apex and base; dorsal punctures fine and sparse centrally on disc, becoming denser and coarser from there towards surrounding areas, particularly coarse and partly confluent in middle of basal foveae; microsculpture largely invisible, hardly detectable only near punctures of basal foveae.

Elytra narrowly subelliptical, a half longer than wide, gently convex, very sparsely and minutely punctate; sides clearly arcuate at humeri, subparallel in the middle, more or less deeply sinuate before apices, which are rounded at tips, narrowly separated from each other and with blunt sutural angles; bases hardly emarginate and very obtusely and angulately meeting with lateral borders; striae deep, wide, and finely crenulate, scutellar striole moderate in length; intervals weakly convex on disc, gradually becoming more convex laterad, dorsal pore of 3rd interval situated near the middle and adjoining 2nd stria; marginal series continuous, but the spaces are wide between umbilicate pores adjoining each other in the middle, composed of 20–22 pores; mi-

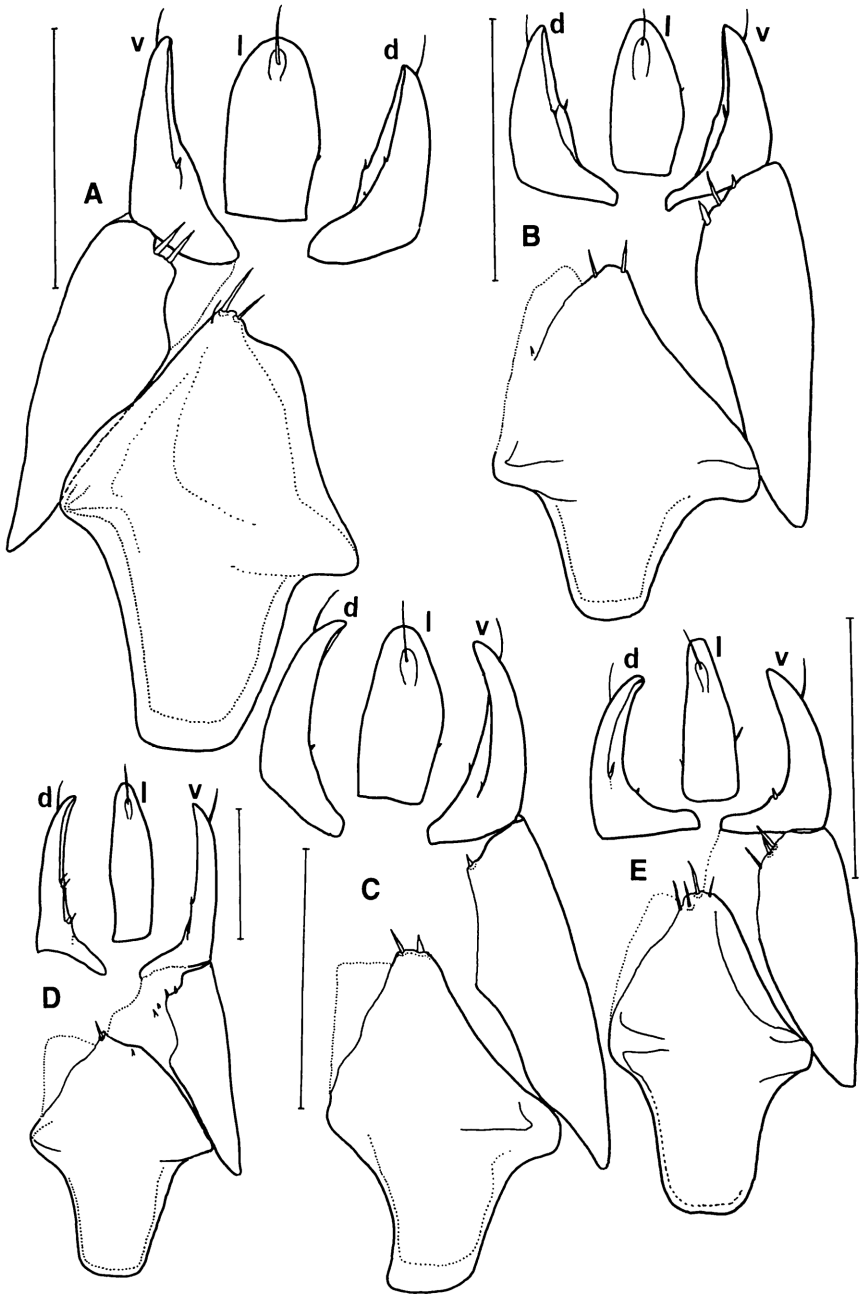

Fig. 11. Female genitalia of *Trichotichnus* spp. —— A, *T.* (*A.*) *obtusicollis* SCHAUBERGER; B, *T.* (*A.*) *curticornis* N. ITO, sp. nov.; C, *T.* (*A.*) *satoi* N. ITO, sp. nov.; D, *T.* (*A.*) *calathiformis* N. ITO, sp. nov.; E, *T.* (s. str.) *gracilitibialis* N. ITO, sp. nov.; d, dorsal aspect; l, lateral aspect; v, ventral aspect. Scale: 1 mm.

crosculpture vague, consisting of transverse lines. Hind wings fully developed.

Ventral surface rather densely punctate on lateral portions of pro- and metasterna and of 2nd and 3rd abdominal sternites, and pro-, meso- and metepisterna, pubescence on the middle of 2nd and 3rd abdominal sternites rather dense; metepisternum strongly narrowed behind, one-fourth as long as wide; apical margin of 6th abdominal sternite in ♂ bisetose and feebly notched at tip and in ♀ quadrisetose and widely rounded.

Legs long; hind femur quadrisetose (rarely trisetose) along hind margin; fore tibia slender, not incised at external half of apex, trispinous along apico-external margin, clearly sulcate on dorsal surface, terminal spur slim and lanceolate; mid tarsus in ♂ bearing biseriate ventral adhesive hairs only on 3rd and 4th segments; hind tarsus in ♂ almost as long as and in ♀ about one-tenth shorter than the width of head, 1st segment three-eighths shorter than the 2nd and 3rd taken together, 3rd three-fourths as long as 2nd and a half longer than the 4th, claw segment tri- or quadrisetose along ventral margin.

Aedeagus (Fig. 10) thick, relatively arcuate, reflexed dorsad at apex; apical lobe quadrate, directed to the right, truncate at tip; apical orifice wide, inner sac armed with a wide and short conical sclerite at the middle. Stylus (Fig. 11–E) more or less clearly curved outwards, with a minute spine basally at each external margin; basal segment trisetose at external apex; valvifer quadrisetose at apex, one of the setae being short and fine.

Length: 9.0–9.8 mm. Width: 3.6–4.2 mm.

Holotype: ♂, Fengtonzhai, alt. 1,500 m, Yanjing Xiang, Baoxing Xian, W. Sichuan, SW. China, 1–X–1997, S.-I. UÉNO leg. Paratypes: 2♂♂, 2♀♀, same locality and collector as the holotype, 2–X–1997 (preserved in NSMT and NI).

This new species belongs to the *longitarsis* group *sensu* HABU and is peculiar in having the ♂ mid tarsus devoid of adhesive hairs on the ventral side of the 1st and 2nd segments. The species is similar to *T.* (s. str.) *longitarsis* MORAWITZ, 1864, but the head is more densely and coarsely punctate, the pronotum is not reddish, the 2nd segment of the mid tarsus does not bear adhesive hairs, and so on.

要　　約

伊藤　昇：中国四川省産ツヤゴモクムシ属の数種について．—— 中国南西部の四川省において，上野俊一博士，佐藤正孝博士，野村周平博士などが採集された多数のゴモクムシ族の標本には，いくつかの未記載種が含まれている．本稿では，それらの一部を，*Trichotichnus* (*Amaroschesis*) *curticornis*, *T.* (*A.*) *satoi*, *T.* (*A.*) *calathiformis* および *T.* (s. str.) *gracilitibialis* と命名して記載した．*T.* (*A.*) *calathiformis* は，雌交尾器の外縁に通常は1本ずつある棘が数本あり，きわめて特異である．同時に，最初の2種に類縁が近いと考えられる，*T.* (*A.*) *obtusicollis* SCHAUBERGER を，基準標本に基づいて再記載した．本研究の一部は，文部省科学研究費補助金（海外学術研究）によるものである．

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Elytra, Tokyo, **27** (2): 597–598, November 13, 1999

Occurrence of a *Chydaeus* on Awaji Island (Coleoptera, Carabidae)

Noboru ITO

1–7–18 Higashiuneno, Kawanishi City, Hyôgo Pref., 666–0117 Japan

The harpalines of the genus *Chydaeus* CHAUDOIR usually occur in rather high mountaineous areas more than 900 m in altitude. Through the courtesy of Mr. Yoshihide OKUDA, Minoo and Mr. Masato MORI, Takarazuka, I was able to examine several specimens of the genus taken on Awaji Island of Hyôgo Prefecture. They were collected in low places 150–300 m in altitude.

Specimens examined. 1♀, Mt. Yuzuriha, Sumoto, Awaji Is., 2–X–1999, M. MORI leg.; 1♂, Aiyagawa Valley, Sumoto, Awaji Is., 29–IV–1999, Y. OKUDA leg.

According to Mr. OKUDA, his specimen was collected with eyeless trechine beetles. As compared with *Chydaeus shibatai* HABU from the Kii Peninsula and *C. shikokuensis* HABU from Mt. Ishizuchi (including one paratype) and Omogo, Shikoku, the Awaji specimens are more

closely related to *C. shikokuensis* in expansion of the male fore and mid tarsi than to *C. shibatai*. This relationship agrees with that between *Trechiama onocoro* S. UÉNO from Awaji Is. and *T. tenuis* S. UÉNO / *T. satoui* S. UÉNO from Shikoku.

At the moment I hesitate to determine the taxonomic position of the Awaji population, since the number of available materials is too small to make discussion on its exact status including individual variation.

Lastly, I cordially thank Mr. Y. OKUDA and Mr. M. MORI for their kind offer of interesting materials.

Elytra, *Tokyo*, **27** (2): 598, November 13, 1999

New Records of Two Harpaline Beetles (Coleoptera, Cababidae)

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Recently, I had an opportunity to examine many harpaline beetles from Asia and found two interesting species newly recorded from Sichuan and Thailand.

I wish to express my deep gratitude to Dr. Jan FARKAČ of the Česka Zemědělská Universita v Praze for his kind loan of a part of the materials used in this study.

1. *Coleolissus* (*Tenuistilus*) *cyanescens* N. ITO et WRASE, 1998
   Coleolissus cyanescens N. ITO et WRASE, 1998, Ent. Rev. Japan, **53**: 43–46. (Yunnan in China).

Specimens examined. 2♂♂, Moxi, 29°13′N, 102°10′E, alt. 1,600 m, Sichuan, China, VII–1998 (N. ITO coll.).

This species was described only from Yunnan. I have now examined its specimens from Sichuan. Though the species is apterous, its distribution may be wide. Apterous trichotichine species are usually restricted in distribution, while *C. cyanescens* makes a sharp contrast in this respect to other species.

Distribution. Yunnan, Sichuan (new record).

2. *Pseudognathaphanus festivus* (ANDREWES, 1921)
   Gnathaphanus festivus ANDREWES, 1921, Trans. ent. Soc. London, **1921**: 107–111. (Vietnam).
   Pseudognathaphanus festivus: SCHAUBERGER, 1932, Kol. Rdsch., **18**: 57. ——— CSIKI, 1932, Coleopt. Cat., (121): 1041. ——— NOONAN, 1973, Quaest. ent., **9**: 344.

Specimens examined. 1♂, 1♀, Kanchanaburi, Thailand, 3～15–IV–1991, J. FARKAČ leg. (preserved in J. FARKAČ coll.); 1♂, 1♀, ditto, 31–III～1–IV–1994, J. HORÁK leg. (preserved in N. ITO coll.).

Distribution. Vietnam, Thailand (new record).

Elytra, *Tokyo*, **27** (2): 599–603, November 13, 1999

On *Agonum* (*Agonum*) *jankowskii* LAFER (Coleoptera, Carabidae)

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Abstract A small agonine carabid beetle, *Agonum* (*Agonum*) *jankowskii* LAFER is redescribed from Sakhalin and Japan, and is newly added to the carabid fauna of Japan.

There are two undetermined specimens of a single species of the genus *Agonum* in my collection. One of them is a male from Sakhalin and the other is a female from the Sarobetsu Moor of Hokkaido, North Japan. Early in this year, Dr. G. Sh. LAFER had an opportunity to visit the Natural History Museum and Institute, Chiba, Japan, and I was able to meet him at Chiba and submitted my specimens to him through the courtesy of Dr. SAITO of the museum. Although he did not have enough time to closely study the genital organ, the male specimen of my collection was determined by him as *Agonum jankowskii*, which had been briefly described by himself from the Primorskij Territory in the "Key to the Insects of Russian Far East". In this paper, I will show the male genital organ based on a single male from Sakhalin, and record this species for the first time from Japan.

The abbreviations used herein are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the mid-line; PA – width of pronotal apex; PB – width of pronotal base, measured between postangular setae; EW – greatest width of elytra; EL – greatest length of elytra; TL – length of metatarsus; PTL – length of segment 2 of protarsus, measured along the mid-line; PTW – greatest width of segment 2 of protarsus.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the original manuscript of this paper.

Thanks are also due to Dr. German Sh. LAFER of Vladivostok for determining this species and for his kind support. My thanks are also due to Mr. Hideaki MATSUMOTO for supplying me with the specimens used in this study and to Dr. Akiko SAITO for her kind help.

Agonum (*Agonum*) *jankowskii* LAFER, 1992

[Japanese name:Sarobetsu-kurohirata-gomimushi]

(Figs. 1–8)

Agonum (*Agonum*) *jankowskii* LAFER, 1992, Opredelitel' Nasekomykh Dal'nego Vostoka SSSR v Shesti Tomakh, **3** (2): 616, fig. 290–1.

Length: 7.4–7.6 mm (from apical margin of clypeus to apices of elytra).

Body black, not iridescent; mouth parts and appendages slightly lighter than dorsum; bases of femora brown.

Head moderately convex; frontal furrows short, very shallow and divergent posteriad; lateral grooves shallow and close to eyes; anterior supraorbital pores situated at the mid-eye level or a little before that level; posterior supraorbital pores situated a little behind the post-eye level or at that level, and weaker than the anterior ones; eyes moderately convex; PW/HW 1.73 in ♂, 1.66 in ♀; genae a little convex and a little shorter than eyes; mentum tooth simple and pointed at apex; neck wide; apex of

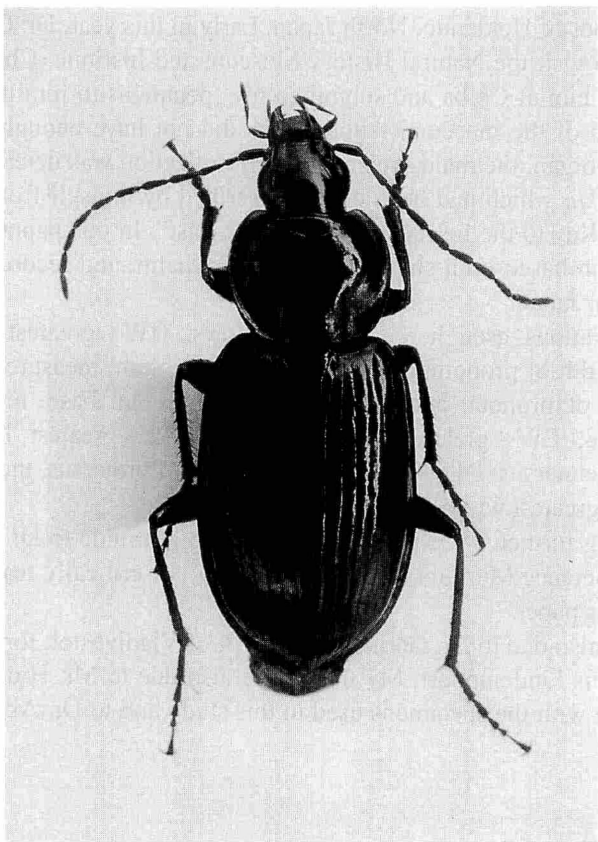


Fig. 1. *Agonum* (*Agonum*) *jankowskii* LAFER from Sakhalin.

labrum straight or slightly emarginate; mandibles short and strongly hooked at apices; microsculpture composed of isodiametric meshes; antennal segment I with a long seta, segment II with a long seta and a short seta, and segment III with several long setae on each side; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI ≒1 : 0.5 : 0.9 : 1.03 : 0.94 : 0.90 : 1.03 in ♂, 1 : 0.52 : 1.03 : 1.10 : 1.05 : 1.05 : 1.16 in ♀.

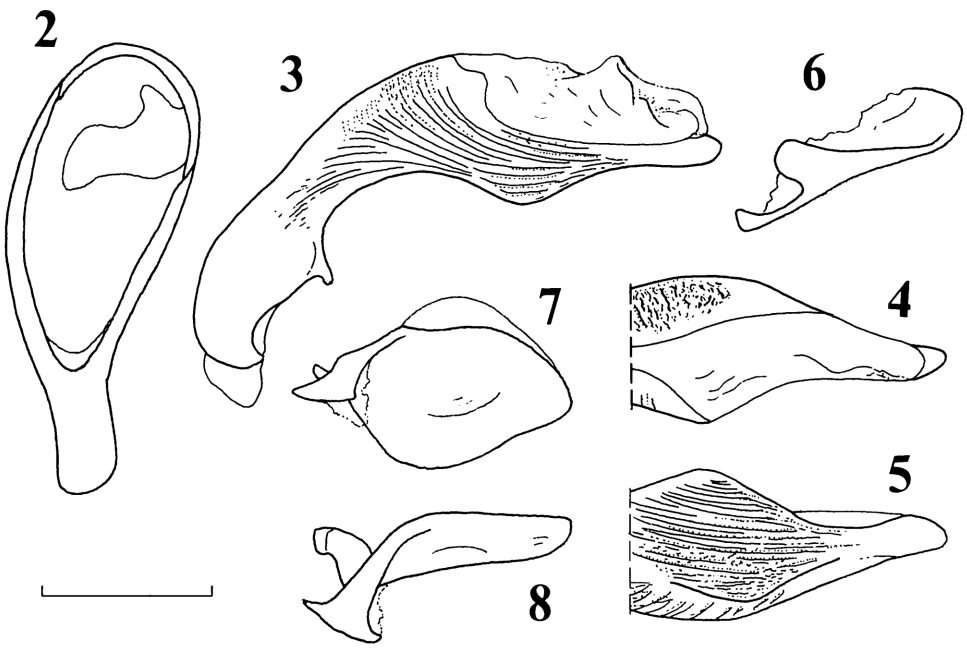
Pronotum wide, convex and widest at about middle or a little before the middle; PW/PL 1.36 in ♂, 1.32 in ♀; PW/PA 1.60 in ♂, 1.59 in ♀; PW/PB 1.33 in ♂, 1.39 in ♀; PA/PB 0.83 in ♂, 0.87 in ♀; apex widely emarginate, and bordered throughout; sides strongly arcuate throughout; reflexed sides very narrow near apical angles and becoming wider posteriad and merging into basal fovea on each side; base weakly arcuate; apical angles slightly produced and widely rounded; anterior transverse impression vanished at the sides and fine at the median part; anterior marginal seta situated at the widest part or a little before that level; median line fine, reaching neither apex nor base; basal foveae shallow, wide and smooth; posterior transverse impression shallow; hind angles widely rounded; microsculpture composed of fine transverse meshes or wide ones.

Elytra rather short, convex and dilated towards the widest part which is at about middle; basal part wide; shoulders widely rounded; EW/PW 1.35 in ♂, 1.33 in ♀; EL/EW 1.43 in ♂, 1.44 in ♀; epipleuron gradually narrowed towards apex; apices rounded on each side and slightly separated from each other; basal border strongly arcuate; basal pore situated at proximal part of stria 1; striae rather shallow throughout, smooth or very weakly crenulate and becoming obsolete towards apices; scutellar striole situated on interval I and joining basal border; intervals slightly convex; in ♂, interval III with 3 pores, first pore situated at 1/5 from base, second one at about middle, and third one at 4/5 from base, the first and the second pores joining stria III or close to stria III, the third one joining stria II or close to stria II; in ♀, interval III with 4 pores, first pore at 1/4, second one at 2/5, third one at 3/5–7/10, fourth one at 4/5 from base, respectively, and the first and the second pores close to stria III, the third ones on interval II, the fourth one on interval III or close to stria II; marginal series composed of 15 pores in ♂, 16 pores in ♀; microsculpture consisting of fine transverse meshes.

Ventral side impunctate, but the sternites bear longitudinal and oblique wrinkles; in ♀, anal sternite with 4 setae which are on a transverse line.

Legs slender; PTW/PTL 1.00 in ♂, 0.82 in ♀; in ♂, segment I of each protarsus hardly bisulcate on dorsum; in ♀, two or three proximal segments of each protarsus with shallow inner and outer sulci; four proximal segments of meso- and metatarsi with inner and outer sulci on dorsal side; claw segments of meso- and metatarsi each with very weak median sulcus on dorsal side and several setae on ventral side; TL/HW 1.29 in ♂, 1.23 in ♀; metatrochanter short and with rounded apex; metafemora each with 4 setae in ♂ and 3 setae in ♀ in ventral view.

Genital segment with an elongate handle; aedeagus elongate; basal part narrow, and with an elongate sagittal aileron; right and left walls and ventral side covered with many strong wrinkles, but the basal part and apical lobe are smooth; viewed laterally,



Figs. 2–8. *Agonum* (*Agonum*) *jankowskii* LAFER from Sakhalin. —— 2, Genital segment, dorsal view; 3, aedeagus, left lateral view; 4, apical part of aedeagus, dorsal view; 5, apical part of aedeagus, ventral view; 6, right paramere, left lateral view; 7, left paramere, left lateral view; 8, left paramere, dorsal view. (Scale: 1 mm for 2 ; 0.5 mm for 3–8.)

ventral surface strongly produced and forming a ridge; apical lobe produced with apex rounded in lateral view; viewed ventrally, apex narrowly rounded and smooth; right paramere elongate and with widely rounded apex; left paramere broad and with large twisted basal part.

Specimens examined. 1♂, 16–VI–1990, Korsakov, Sakhalin; 1♀, 9–VIII–1991, Wakkasakanai, Toyotomi-chô, Hokkaido, H. MATSUMOTO & T. ARAKI leg.

Range. Russia (Primorskij Territory, Sakhalin); Japan (Hokkaido).

Notes. According to Dr. LAFER, the type locality of this species is the mouth of the Riv. Suyfun (=Riv. Razdolnaya) about 26 km NW of Vladivostok. The type specimens were obtained at the left bank of the river.

This species is closely allied to *Agonum* (*Agonum*) *sculptipes* (BATES) (1883, p. 257), but is distinguished from it by the following points: 1) smaller body, 2) smaller eyes, 3) less strongly arcuate sides of pronotum, 4) wider basal part of elytra, 5) robuster legs, 6) PTW/PTL 1.00 in ♂, 0.82 in ♀, 7) TL/HW 1.29 in ♂, 1.23 in ♀, 8) handle of genital segment elongate, and 9) peculiar shape of male genital organ. [In *A.* (*A.*) *sculptipes* (BATES) from Memanbetsu and Utonaiko, Hokkaido, North Japan, body length: 8.8–10.2 mm; PW/PL 1.22–1.29 (M 1.25) in 5♂♂, 1.21–1.29 (M 1.25) in 5♀♀; EL/EW 1.48–1.56 (M 1.52) in 5♂♂, 1.44–1.47 (M 1.46) in 5♀♀; TL/HW

1.48–1.55 (M 1.51) in 4♂♂, 1.40–1.46 (M 1.44) in 5♀♀; PTW/PTL 0.63–0.70 (M 0.66) in 8♂♂, 0.56–0.71 (M 0.74) in 7♀♀; handle of genital segment wide and dilated apically.]

要　約

森田誠司：サロベツクロヒラタゴミムシについて．—— ロシア沿海洲より記載された小型のヒラタゴミムシ，*Agonum* (*Agonum*) *jankowskii* LAFER, 1992をサハリン産の雄および北海道サロベツ原野産の雌の標本を基に再記載した．

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Elytra, *Tokyo*, **27** (2): 603–604, November 13, 1999

Notes on the Bembidiinae (Carabidae) of Japan

XII. A Record of *Tachylopha ovata* (MOTSCHULSKY)

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Tachylopha ovata (MOTSCHULSKY, 1851) is a remarkable tachyine carabid beetle characterized above all by the tricolored antennae and peculiar shape of the hind angles of pronotum and of the elytral shoulders. A habitus drawing of this species was shown by ANDREWES (1935) in one of his great works, "The Fauna of British India, including Ceylon and Burma, Carabidae Vol. II".

BRUNEAU DE MIRÉ (1966) reported the unique structure of the African species of *Tachy-*

lopha: a transverse "tunnel" (cf. ERWIN, 1970) in the body wall at the juncture of the mesepisternum and mesepimeron. ERWIN (1970) speculated on the function of this structure in *T. ovata*. According to his hypothesis, this species is probably myrmecophilous. When carrying or lifting the beetles, ants insert their mandibles in the transverse tunnel. Besides, the unique shape of the elytral shoulders reinforces the hold.

This unique species is widely distributed in Southeast Asia. The first record of it from Japan was given by myself in the second volume of "The Coleoptera of Japan in Color" (1985). The specimen used in the book was collected and identified by UÉNO, and is now preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo (1 ♀, Mitara [near Shirahama], Is. Iriomoté-jima, Ryukyu Islands, 8–X–1963, S. UÉNO leg.). However, this work was iconographical and did not include the collecting data given above. Recently, a second Japanese specimen of this species was collected on the same island by a friend of mine, Mr. KIMURA.

Tachylopha ovata (MOTSCHULSKY)

Second specimen examined. 1 ♀, Shirahama, Iriomote Is., 25–III–1995, M. KIMURA leg.

As was already commented by ERWIN himself, further field works and observations are required for making his hypothesis clear.

I am deeply indebted to Dr. Shun-Ichi UÉNO for reading the original manuscript of this paper. Thanks are also due to Mr. Masaaki KIMURA for supplying me with the material.

Elytra, *Tokyo*, **27** (2): 605–610, November 13, 1999

A New Species of the Group of *Trechiama oni* (Coleoptera, Trechinae) from the Kii Peninsula, Central Japan

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Abstract A new anophthalmic *Trechiama* is described from the westernmost part of the Izumi Hills on the Kii Peninsula, Central Japan, under the name of *Trechiama morii*. This new species belongs to the *satoui* complex of the group of *T. oni* and is closely allied to *T. onocoro* from Is. Awaji-shima. It is, however, easily distinguished from the latter species by both the external characters and the structure of male genital organ.

The members of the group of *Trechiama oni* are distributed in western Kinki District, Chûgoku District and northeastern Shikoku. In the Kii Peninsula, only one species, *T. dissitus* S. UÉNO (1984, p. 10, figs. 5–6) belonging to the *kosugei* complex, was described from the central area of the Izumi Hills.

In the autumn of 1998, a female specimen of *Trechiama*, which belongs to the group of *T. oni*, was obtained by Mr. MORI from the upper hypogean zone of a small valley at Kada, the western end of the Izumi Hills. This finding made many coleopterists including the author himself visit the locality and as the result, sufficient specimens of this species were obtained. After a careful examination, it becomes clear that this species is a new member of the *satoui* complex in contrast to *T. dissitus* which belongs to the *kosugei* complex. In this paper, I am going to describe it under the name of *T. morii*.

The abbreviations used herein are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the midline; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; M – arithmetic mean.

I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kind guidance and revising the manuscript. Hearty thanks are also due to Messrs. Masato MORI, Akira KITAYAMA, Shôtarô TANAKA, Kenji KITAYAMA, Takumi SAITÔ, Hiroshi ÔHIRA and Yoshihide OKUDA for their kind support throughout this study, and Dr. Masahiro KON of the University of Shiga Prefecture, for taking photographs of scanning electron microscope.

Trechiama (s. str.) ***morii*** ASHIDA, sp. nov.

[Japanese name: Kada-mekura-chibigomimushi]

(Figs. 1–5)

Length: 4.75–5.50 mm (from apical margin of clypeus to apices of elytra).

Relatively small species of slender body form, belonging to the *satoui* complex of the group of *T. oni* and closely allied to *T. onocoro* S. UÉNO (1983, p. 355, figs. 3–4) from Mt. Kabuto-yama of the Yuzuruha Hills on Is. Awaji-shima. Externally distinguishable from the latter species by the lighter coloration, the smaller hind body, and narrower and less convex elytra with deeply impressed striae on the disc and with distinct shoulders. The male genital organ is similar to that of *T. onocoro*, but different from the latter by more elongate and ventrally curved apical lobe.

Color usually reddish brown, somewhat lighter than in *T. onocoro*, with yellowish

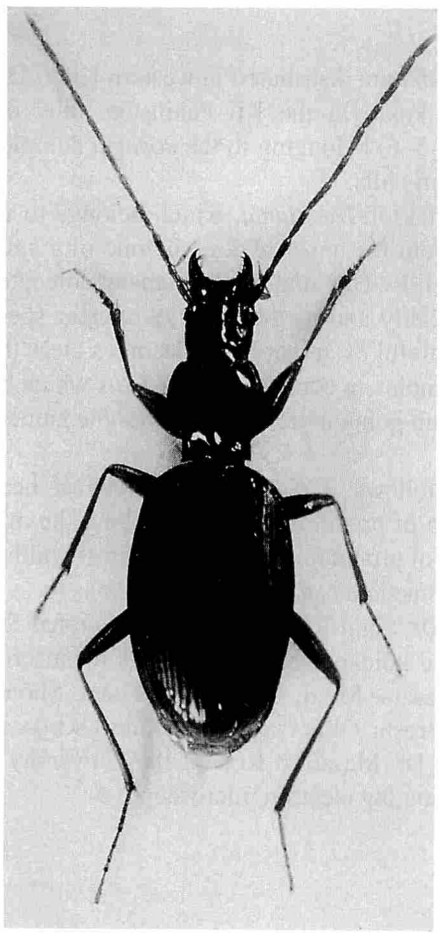


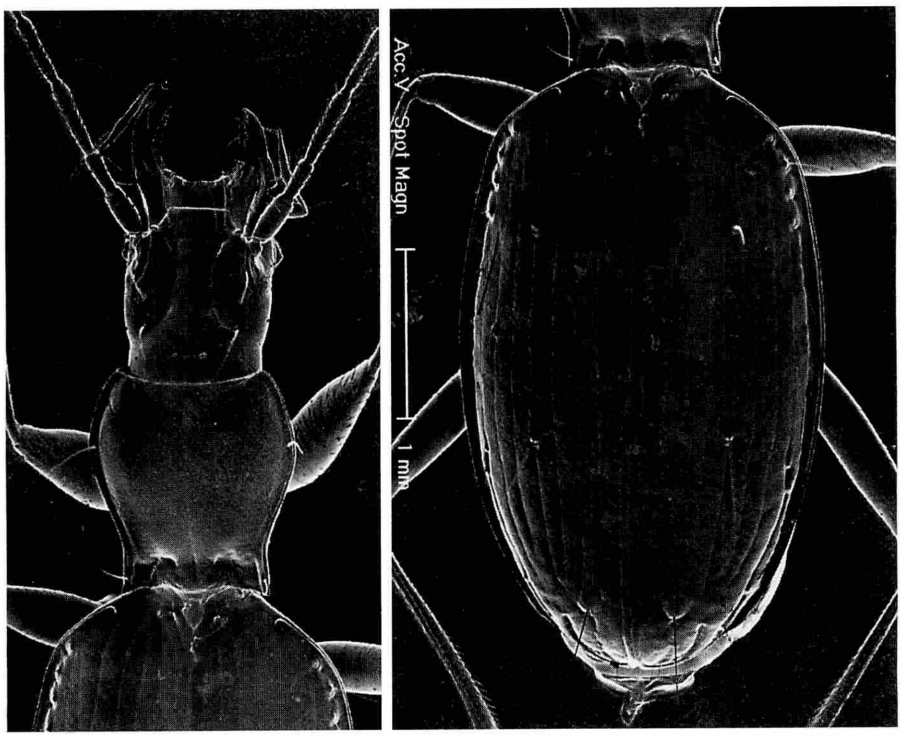
Fig. 1. *Trechiama* (s. str.) *morii* ASHIDA, sp. nov., ♂, from Mt. Takamori-yama on the Izumi Hills; dorsal view.

brown appendages.

Head as in *T. onocoro* though somewhat narrower; antennae a little longer and slenderer than in *T. onocoro*.

Pronotum subcordate, almost as wide as length, a little less transverse on an average than in *T. onocoro*, widest at three-fourths from base; sides strongly arcuate in front, deeply sinuate at about one-fifth from base, and then feebly divergent again towards hind angles, hind angles usually sharper than in *T. onocoro*; postangular setae present. PW/HW 1.37–1.50 (M 1.42), PW/PL 1.01–1.08 (M 1.05), PW/PA 1.30–1.38 (M 1.34), PW/PB 1.38–1.44 (M 1.41), PB/PA 0.92–0.98 (M 0.95).

Elytra oblong-oval, narrower and less convex than in *T. onocoro*, widest at about middle, more regularly narrowed towards apices than towards bases; EW/PW 1.62–1.78 (M 1.70), EL/EW 1.48–1.59 (M 1.56); prehumeral borders straight and less oblique, shoulders more distinct than in *T. onocoro*; sides feebly arcuate from behind shoulders to near apices; striation more deeply impressed on the disc than in *T. onocoro*; two setiferous dorsal pores on stria 5 situated at about 1/5–1/4 and 5/9–3/5 from base, respectively.

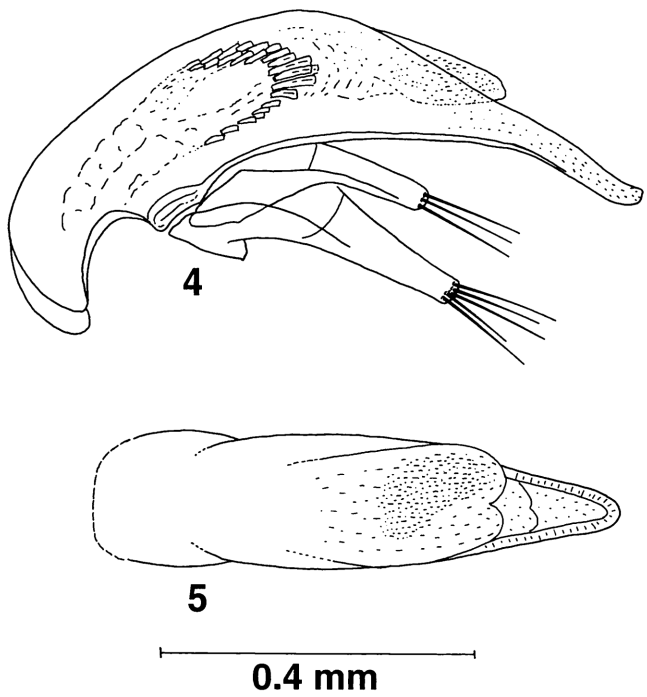


Figs. 2–3. *Trechiama* (s. str.) *morii* ASHIDA, sp. nov., ♂, from Mt. Takamori-yama on the Izumi Hills; head and pronotum (2), and elytra (3).

Legs more or less slenderer than in *T. onocoro*.

Male genital organ similar in many details to that of *T. onocoro*. Aedeagus small though a little longer than in *T. onocoro*, about one-third as long as elytra, moderately arcuate and flattened, with rather small basal part; sagittal aileron small and narrow; viewed laterally, apical part gradually narrowed towards the apex and curved ventrad, and slightly turned up at the tip; viewed dorsally, apical lobe longer and narrower than in *T. onocoro*, rounded at the extremity. Inner sac armed with two patches of sclerotized teeth but devoid of differentiated copulatory piece as in *T. onocoro*; left proximal teeth patch well developed and horseshoe-shaped, consisting of large, heavily sclerotized teeth though each tooth is smaller than in *T. onocoro*, extending from left lateral to dorsal; right apical teeth-patch smaller than the proximal one, composed of much smaller teeth lying just inside apical orifice; styles a little longer than in *T. onocoro*, left style larger than the right, left style bearing four or five setae at the apex and the right three or four.

Type series. Holotype: ♂, 30–I–1999, T. SAITÔ leg. Allotype: ♀, 29–XI–1998, H. ASHIDA leg. Paratypes: 1♀, 25–X–1998, M. MORI leg.; 1♂, 7–XI–1998, A. KITAYAMA leg.; 1♀, 22–XI–1998, T. SAITÔ leg.; 1♀, 25–XI–1998, S. TANAKA leg.; 1♀, 28–XI–1998, K. KITAYAMA leg.; 3♀♀, 29–XI–1998, H. ASHIDA & K. KITAYAMA leg.; 1♂,



Figs. 4–5. *Trechiama* (s. str.) *morii* ASHIDA, sp. nov., ♂, from Mt. Takamori-yama on the Izumi Hills; male genitalia, left lateral view (4), and apical part of aedeagus, dorsal view (5).

2♀♀, 1–XII–1998, S. TANAKA & T. SAITÔ leg.; 9♂♂, 2♀♀, 30–I–1999, T. SAITÔ, Y. OKUDA & H. ÔHIRA leg.; 1♀, 13–II–1999, T. SAITÔ leg. The holotype and allotype are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Type locality. Kada (100 m alt.), SSW slope of Mt. Takamori-yama (284 m in height), Wakayama-shi, Wakayama Prefecture, Central Japan.

Further record. 1♀, 14–II–1999, H. ASHIDA leg.; 1♀, 4–VII–1999, K. KITAYAMA leg. Tanagawa (120 m alt.), western slope of Mt. Okineto-yama (244 m in height), Misaki-chô, Osaka Prefecture, Central Japan.

Notes. Though the present new species is different from *T. onocoro* in external characters, it belongs to the *satoui* complex and is closely allied to the latter species because of the similarity of the male genitalia. Within the eight members of the *satoui* complex hitherto described, seven were known from northeastern Shikoku and one from Is. Awaji-shima. Mt. Takamori-yama, the type locality of the present species, is about 24 km east by north of Mt. Kabuto-yama on the southern part of Is. Awaji-shima, the type locality of *T. onocoro*. As the Tomo-ga-shima Straits lie between the two localities, this is the first record of the *satoui* complex from Honshu. The type locality of this species is about 26 km west by south of Mt. Inunaki-san, the type locality of *T. dissitus*, a member of the *kosugei* complex of the group of *T. oni*. Both the localities are on the same strata called the Izumi group and there is no apparent geographical barrier between them.

The type materials of this new species were dug out from the upper hypogean zone in a small gully at a depth of 30–150 cm. It is worth noting that two undescribed species of *Stygiotrechus* were obtained in the same place at Kada.

The second locality of this new species, Tanagawa, is about 1.5 km east-northeast of the type locality. The specimens from this population are indistinguishable from the type series by external characters.

要　　約

芦田　久：紀伊半島から見いだされたオニメクラチビゴミムシ群の1新種．—— 紀伊半島の和泉山地西端部より，*Trechiama morii* sp. nov.カダメクラチビゴミムシを記載した．本種は，オニメクラチビゴミムシ群サトウメクラチビゴミムシ系に属し，友ヶ島水道を隔てた対岸の淡路島諭鶴羽山地の兜布丸山から記載されたオノコロメクラチビゴミムシに近似するが，体の外形や雄交尾器の構造により容易に識別できる．サトウメクラチビゴミムシ系は，四国北東部から淡路島にかけてこれまでに8種が記載されているが，今回の発見は本州からの初めての記録となる．

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Elytra, Tokyo, **27** (2): 610, November 13, 1999

An Additional Record of *Dictyon insulicola* KISHIMOTO (Coleoptera, Staphylinidae, Aleocharinae)

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Dictyon insulicola was described by myself (KISHIMOTO, 1999, Elytra, Tokyo, **27**: 207) from three islands, Haha-jima, Otôto-jima and Muko-jima of the Ogasawara Islands as the first representative of the genus from the Pacific islands or East Asia. Through the kindness of my colleague Mr. Takashi SHIMADA, I was able to examine later some additional specimens of this staphylinid beetle collected by Mr. Seiji URAGAMI on Ani-jima Island. This report presents the first record of this species on the island.

Specimens examined. 6 exs., Uguisuhama, Ani-jima Is., Ogasawara Isls., 9–IX–1998, S. URAGAMI leg. According to the collector, these specimens were collected from under the bark of a rotten log near the beach.

Distribution. Ogasawara Islands (Haha-jima Is., Ani-jima Is. [new record], Otôto-jima Is., Muko-jima Is.).

I wish to express my thanks to Messrs. Seiji URAGAMI and Takashi SHIMADA for their help.

Elytra, *Tokyo*, **27** (2): 611–616, November 13, 1999

A New Isolated *Trechus* (Coleoptera, Trechinae) from the Micang Shan Mountains in Northeastern Sichuan, Southwest China

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Abstract A new species of the trechine genus *Trechus* is described from the Micang Shan Mountains on the borders of northeastern Sichuan and southern Shaanxi, Southwest China, under the name of *Trechus* (s. str.) *imurai*. It is a small species recognized at first sight on the absence of the preapical pore on each elytron and the peculiar conformation of its male genitalia.

In the past decade, many species of the trechine genus *Trechus* have been described, mostly by DEUVE, from China. They are abundantly found on the Tibetan Plateau and its continuations, or in the northern territories, and are gradually replaced by the members of the genus *Epaphiopsis* in the southern part of the country. An epitome of this is found in Sichuan; *Trechus* species commonly occur in the northern and northwestern areas of the province, or in the eastern peripheries of the Tibetan Plateau (cf. DEUVE, 1988, 1989, 1992, 1995, 1997; DEUVE & QUÉINNEC, 1993), but are only sporadically met with on other mountains (cf. DEUVE, 1992, 1995; UÉNO, 1998), which are frequently occupied by the members of *Epaphiopsis*.

Only two species of trechine beetles have hitherto been recorded from the Daba Shan Mountains and their continuations, stretching from northwest to southeast on the borders of Sichuan and Shaanxi and extending into western Hubei. One of them is *Epaphiopsis* (*Epaphiama*) *lamellata* S. UÉNO et YU (1997, p. 25, figs. 1–3) described from Shennongjia at the eastern end of the Daba Shans, and the other is *Paragonotrechus laticollis* S. UÉNO et YU (1997, pp. 29, 33, figs. 4–6) recorded from the Liangjiawan Yakou on the Daba Shans. No *Trechus* has been met with in spite of repeated investigations made by many entomologists, above all on Shennongjia.

On his recent trip to the Micang Shan Mountains, the northwestern continuation of the Daba Shans, Yûki IMURA collected two different species of humicolous trechine beetles. One of them is known from only a female specimen but is possibly referable to *Epaphiopsis lamellata*, whereas the other is an indubitable new species of the grand genus *Trechus* and is unique in its morphological peculiarities. I am going to describe this interesting new species in the present paper, under the name of *Trechus* (s. str.) *imurai*. The abbreviations used herein are the same as those explained in previous pa-

pers of mine.

Before going into further details, I wish to express my heartfelt thanks to Dr. Yûki IMURA for his effort to obtain trechine beetles for me on the mountains never investigated before by entomologists, and also to my friend, Mr. FAN Ting, who made every effort to help Dr. IMURA's investigation in the field.

Trechus (s. str.) *imurai* S. UÉNO, sp. nov.

(Figs. 1–3)

Length: 2.60–2.95 mm (from apical margin of clypeus to apices of elytra).

A small isolated species of short broad facies readily recognized on the absence of preapical pore on elytra. Also characterized by the polished body surface almost completely devoid of microsculpture, small flat eyes, tumid genae, presence of continuous basal transverse sulcus on pronotum, strongly convex elytra with only feeble but coarsely punctate striae on the disc, and peculiar conformation of male genitalia.

Body short and broad, with transverse head and prothorax, strongly convex ovate elytra, and short appendages; surface polished; microsculpture practically absent, though vestiges of fine transverse lines are visible through integument on the anterior part of head and large part of elytra; inner wings absent. Colour brown to light brown, more or less infuscated in fore body; clypeus, labrum, palpi, several apical antennomeres, epipleura, apical sternites, and legs yellowish brown, more or less paler than the other parts of body.

Head transverse, only three-fourths as long as wide; dorsum depressed, though both the supraorbital areas and frons are moderately convex due to deeply carved frontal furrows, which are very obtusely subangulate, moderately divergent in front and widely so behind towards deep neck constriction; supraorbital pores closely located, lying on lines divergent posteriorly, the anterior pair being foveolate; eyes small and flat, though individually variable in size and convexity; genae tumid, two-thirds to one and one-ninth as long as eyes and sometimes slightly more convex than eyes, completely glabrous; neck very wide, with the anterior constriction deeply and sharply marked at the sides; labrum transverse, with the apical margin deeply emarginate and sometimes slightly bisinuate at the bottom; mandibles short and stout, bidentate, with sharply hooked apical portions; mental tooth broad and porrect, distinctly bifid at the tip; submentum sexsetose, with the innermost pair smaller than the others; palpi short and stout, penultimate segments widely dilated towards apices, about as long as apical segment in labial palpus, obviously longer than the apical in maxillary palpus, apical segments elongated subconical; antennae short and stout though subfiliform rather than submoniliform, reaching basal fifth of elytra or extending slightly beyond that level, segment 2 about as long as segment 3 and about five-sixths as long as scape, segments 4–10 subequal in length to one another, each less than twice as long as wide and slightly shorter than segment 2 or 3, terminal segment the longest, slightly longer but narrower than scape.

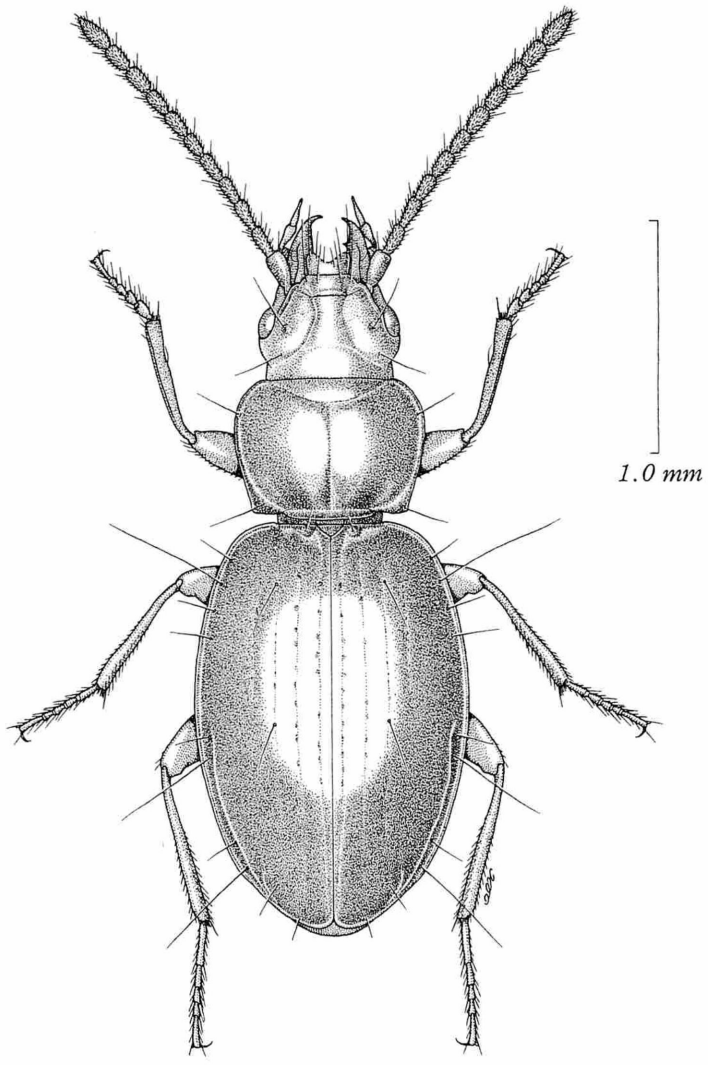


Fig. 1. *Trechus* (s. str.) *imurai* S. UÉNO, sp. nov., ♂, from the Jiaojia He Valley below Daba on the Micang Shan Mountains.

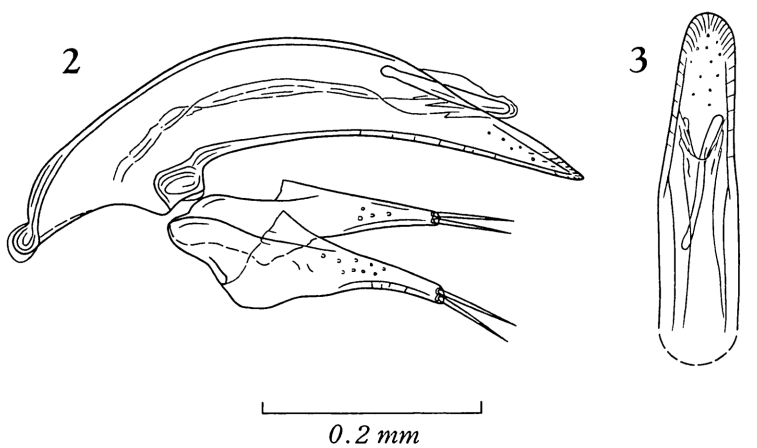
Pronotum transverse, wider than head, widest at about three-fifths from base or a little before that level, and more gradually narrowed towards base than towards apex; PW/HW 1.36–1.48 (M 1.41), PW/PL 1.37–1.53 (M 1.44), PW/PA 1.43–1.55 (M 1.48), PW/PB 1.27–1.39 (M 1.33); sides moderately bordered, narrowly near front angles and rather widely at the reflexed postangular parts, rather strongly arcuate in front, less so behind middle, and hardly or very slightly sinuate just before hind angles, which are obtuse and more or less worn-out at the corners; apex more or less narrower than base,

PB/PA 1.07–1.18 (M 1.12), either straight or very slightly arcuate, with front angles rounded and not advanced; base slightly produced at the median part and nearly straight, briefly but distinctly emarginate on each side above basal peduncle of elytra, and briefly arcuate anteriad at each hind angle; dorsum well convex and smooth, steeply declivous posteriad and at the antero-lateral parts; median line distinct, particularly near apical transverse impression, which is distinct, linear and continuous; basal transverse sulcus sharply carved; no postangular carinae; basal area narrow and transversely convex.

Elytra ovate, usually a little more rotundate in ♀ than in ♂, obviously wider than pronotum, longer than wide, widest at about four-ninths from bases, and more gradually narrowed towards bases than towards apices; EW/PW 1.43–1.53 (M 1.48), EL/PL 2.76–3.05 (M 2.91), EL/EW 1.32–1.42 (M 1.36); shoulders rounded continuously to prehumeral borders; sides narrowly bordered throughout, gently arcuate at middle, less so in front and behind, and rather narrowly rounded at apices which form a small reentrant angle at suture, preapical emargination shallow but appreciable; dorsum strongly convex, steeply declivous at the lateral and apical parts; striae superficial though rather coarsely punctate on the disc, evanescent at the side, stria 1 entire, distinctly impressed before middle, 2 also distinct though obsolete near base, 3 shallower than inner two and often fragmentary, 4 just perceptible before the middle, 5–7 effaced, 8 impressed behind the middle set of marginal umbilicate pores; scutellar striole absent; apical striole distinctly impressed though short and lightly curved, free at the anterior end but apparently directed to the site of stria 5; intervals smooth and completely flat, apical carina obtuse; stria 3 with two setiferous dorsal pores at 1/7–1/6 and 3/7–1/2 from base, respectively; preapical pore absent; marginal umbilicate pores regular.

Ventral surface smooth; visible sternites 3–5 each with a pair of paramedian setae; anal sternite with a pair of marginal setae in ♂, with two pair of them in ♀. Legs short but fairly thin; protibiae straight, moderately dilated towards apices, and externally grooved; tarsi fairly thin, tarsomere 1 about as long as tarsomeres 2 and 3 together in both meso- and metatarsi; in ♂, two proximal protarsomeres moderately dilated and rather stoutly produced inwards at apices.

Male genital organ small and rather lightly sclerotized. Aedeagus three-tenths as long as elytra, fairly slender, gently compressed and lightly arcuate, gradually and regularly tapered from behind middle towards apex in profile, with fairly large basal part and long spatulate apical lobe; dorsal margin moderately arcuate at middle in lateral view; basal part fairly large but low, hardly bent ventrad, distinctly tuberculate at the proximal end, and with an extremely narrow hyaline sagittal aileron on the tubercle; basal orifice large, with the sides widely but not deeply emarginate; viewed laterally, apical lobe narrowly produced and pointed at the extremity; viewed dorsally, apical lobe nearly parallel-sided and symmetrical though somewhat inclined to the left, with the tip widely and strongly rounded; ventral margin widely and shallowly emarginate in profile. Inner sac armed with a slender subcylindrical copulatory piece a little less than one-fourth as long as aedeagus, lying diagonally from right proximal to left apical



Figs. 2–3. Male genitalia of *Trechus* (s. str.) *imurai* S. UÉNO, sp. nov., from the Jiaojia He Valley below Daba on the Micang Shan Mountains; left lateral view (2), and apical part of aedeagus, dorso-apical view (3).

just inside apical orifice, with the blunt apex almost protruding outside; no teeth-patches. Styles relatively straight with very narrow apical parts, left style only a little longer than the right and with rudimentary ventral apophysis, each bearing only two short apical setae.

Type series. Holotype: ♂, allotype: ♀, paratypes: 4♂♂, 6♀♀ (incl. teneral 1♂, 2♀♀), 4–VI–1999, Y. IMURA leg. All deposited at present in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Micang Shan Mountains, Jiaojia He Valley below Daba, 1,350 m in altitude, in Nanjiang Xian of northeastern Sichuan, Southwest China.

Notes. I have been unable to find any *Trechus* species directly related to the present new trechine. It may be placed in its own subgenus seeing that it exhibits a combination of many peculiarities, but I prefer to refrain from making such a proposal, at least at the present moment, since there are numerous congeners not available for my study.

The type specimens of this interesting new species were collected by sifting dead leaves in a deciduous broadleaved forest on the left side of the Jiaojia He Valley at the southern side of the main ridge of the Micang Shan Mountains, together with a single female of *Epaphiopsis* (*Epaphiama*) cf. *lamellata* S. UÉNO et YU. It is dedicated with pleasure to Dr. Yûki IMURA, an eminent specialist of the Carabinae.

要　　約

上野俊一：中国四川省米仓山産チビゴミムシ属の孤立した1新種．—— 過去10年ほどのあいだに，多くのチビゴミムシ属の新種が中国から記載された．しかし，その大多数はチベット高原やその周縁部の地域に分布するもので，ほかの山地からの記録はひじょうに少なく，とく

に南方の地域では，ケムネチビゴミムシ属の種によって置き換えられる傾向が強くみられた．この事情は，四川省北東部と陝西省南部とを境する大巴山脈やその延長上に位置する山地でも同様で，これまでには，湖北省側の神农架から記載されたケムネチビゴミムシ属の1種と，四川盆地の周縁部に広く分布するハバビロチビゴミムシ群の有翅の1種が知られているにすぎなかった．

1999年の初夏に行われた井村有希博士らの現地調査で，大巴山脈の北西方向への延長部に当たる米仓山脈から2種のチビゴミムシ類が発見された．そのひとつは，おそらく神农架産の *Epaphiopsis* (*Epaphiama*) *lamellata* S. UÉNO et YU に同定されるものではないかと考えられるが，他のひとつは明らかな新種で，しかもチビゴミムシ属 *Trechus* のなかに孤立した地位を占めるものと認められた．とくに上翅の亜端毛を欠くことや，体表に微細印刻がなく，前胸背板基部の横溝が一続きの深い溝になっていること，雄交尾器の形状が特異で，きわめて狭い矢状片をそなえた矢状突出部が中央片の基部にあり，交尾片が細長くて端孔のすぐ内側に斜めに位置することなど，独立の亜属が認められるのではないかと思われるほど特異な点が多い．しかし，チビゴミムシ属は，きわめて多数の種を含むチビゴミムシ亜科では最大の属であり，個々の種の吟味も系統関係の解析もまだ不十分であるうえに，今なお多くの新種が記載されつづけているという事情を考慮して，差し当たりはこのチビゴミムシを，チビゴミムシ亜属のうちの孤立した地位にある新種だと認めるにとどめ，これを採集者の井村博士に捧げて，*Trechus* (s. str.) *imurai* S. UÉNO と命名記載した．

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Elytra, *Tokyo*, **27** (2): 617–633, November 13, 1999

New Genera and Species of Aphaenopsoid Trechines (Coleoptera, Trechinae) from South-Central China

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Abstract Two new genera and three new species of aphaenopsoid trechine beetles are described from limestone caves of northwestern Hunan, southwestern Hubei and northwestern Guizhou, South-Central China, under the names *Toshiaphaenops ovicollis*, *T. globipennis* and *Shenaphaenops humeralis*, respectively. The two genera are similar to each other in many respects, but seem to belong to different lineages because of decisive difference in elytral conformation and other details. Their similarity may have been brought about through convergence.

Since the first Chinese species of troglobiontic trechine beetle was described from southeastern Guizhou (UÉNO & WANG, 1991), our knowledge has become rapidly enriched of the cave trechine fauna of China. Twelve eyeless species belonging to nine different genera have already been reported from Hunan (DEUVE, 1996), Guizhou (VIGNA TAGLIANTI, 1997; UÉNO, 1998 a; UÉNO & RAN, 1998), Guangxi (DEUVE, 1993; UÉNO, 1998 b) and Yunnan (UÉNO, 1997), and there are still some others from Guizhou and Hubei that await descriptions. These records appear to show that truly aphaenopsoid genera like *Sinaphaenops*, *Dongodytes* and *Junaphaenops* are confined to the southern peripheral areas of the distributional range of troglobiontic trechines and that the northern areas are occupied by semi-aphaenopsoid and anophthalmoid ones. This inference is, however, utterly wrong; remarkable aphaenopsoid species occur widely in the northern part of their distributional range now known, alongside of such semi-aphaenopsoid genera as *Cathaiaphaenops* and *Guizhaphaenops*.

In the present paper, I am going to describe three truly aphaenopsoid species from northwestern Hunan, southwestern Hubei and northwestern Guizhou, South-Central China. They are very rare and difficult to obtain, males having been known in only one of the three. However, they are no doubt classified into two different genera by external morphology alone. Although their true relationships are not clear at the moment, I believe they are worth introducing into science now seeing that it is not easy to obtain ample material of these and related species.

The abbreviations used herein are the same as those explained in previous papers of mine.

Before going into further details, I wish to thank Drs. Yoshiaki NISHIKAWA, WANG

Fuxing and Toshio KISHIMOTO for their collaboration in the field. Hearty thanks are also due to Mr. FAN Ting of the International Academic Exchange Center of the Academia Sinica and the authorities of the counties of Longshan (Hunan), Xianfeng (Hubei) and Shuicheng (Guizhou) for their kind arrangement and help of our investigations of the cave fauna.

Genus ***Toshiaphaenops*** S. UÉNO, nov.

Type species: *Toshiaphaenops ovicollis* S. UÉNO, sp. nov.

Relatively small aphaenopsoid trechines with narrow fore body, strongly convex pronotum and elytra and slender appendages; apterous and depigmented; surface more or less pubescent except for elytra which are completely glabrous; microsculpture vanished altogether with the exception of clypeus and labrum, on which it is formed by wide meshes. Concolorously reddish brown to dark reddish brown and polished, with somewhat lighter palpi and several apical antennomeres.

Head elongate, much longer than wide, widest before the middle and gradually narrowed posteriad towards neck constriction, which is shallow but distinct, continuing onto both dorsum and venter; frontal furrows incomplete though deeply impressed, gently arcuate in front, straightly divergent behind, and just reaching the middle; dorsum pubescent, the pubescence extending laterally onto genae and subgenae; two widely distant pairs of supraorbital setae present, the anterior one being located just behind antennal sockets and the posterior just before neck constriction, a third seta rarely present between the two on one side; a pair of subgenal setae present close to gular suture just below the posterior pair of supraorbital ones; eyes completely absent; genae only slightly convex; clypeus fairly long though not so wide, quadrisetose. Labrum transverse, shorter than clypeus, with the apical margin either slightly emarginate or slightly bisinuate. Mandibles long and slender, briefly but sharply arcuate inwards only at the apical portions; right mandible distinctly bidentate, left one devoid of distinct teeth. Mentum imperfectly fused with submentum, labial suture either traceable throughout or degenerated at the median part; mental tooth narrow but porrect, usually simple at the tip though rarely subtruncated; submentum with a transverse row of 10–12 setae; ligula obviously protuberant at the apex, with a pair of long setae on the tubercle and three shorter ones on each side; paraglossae thin and slightly arcuate, extending beyond ligula; labial palpus very slender, with very long, slightly arcuate penultimate segment bearing three setae, two inside and one outside, apical segment about two-thirds as long as the penultimate and slightly narrowed towards blunt apex from the middle. Maxillae very long, only a little shorter than mandibles, and lightly arcuate; galea with very long proximal and short apical segments; lacinia with rather sparse rows of recurved spines on the inner margin; maxillary palpus long and slender, with long glabrous penultimate segment gradually dilated towards apex, apical segment only a little shorter than the penultimate, about nine-tenths as long as the latter, similar in configuration to that of labial palpus. Antennae long and very thin, reaching

apical fourth to fifth of elytra, wholly pubescent except on the posterior face of scape; scape short and thick, about as long as pedicel, which is about five-sevenths as wide as scape; segment 3 the longest, more than seven times as long as wide; segments 4–10 gradually decreasing in length towards apex; terminal segment about as long as segment 7, more than six times as long as wide, and obviously thinner than segment 3 or 4.

Prothorax wider than head and longer than wide, though variable in shape, with laterally expanded propleura clearly visible in dorsal view. Pronotum fairly broad though much longer than wide, widest before the middle, and more or less narrower at the base than at the apex; margins finely bordered throughout, with two pair of marginal setae, of which the anterior one is located well before the widest part and the posterior one before ante-basal sinuation; dorsum well convex, either sparsely covered with fairly long hairs (*T. ovicollis*) or provided with a few hairs on each side of median line behind the middle (*T. globipennis*); sides briefly sinuate before hind angles, which are more or less rounded; basal transverse sulcus deep and continuous, clearly separating narrowly convex basal area from the convex disc; median line fine, not extending posteriorly beyond basal transverse sulcus. Scutellum small though distinct.

Elytra fused together, ovate, strongly convex, much wider than prothorax, widest at about middle, and more pointed at bases than at apices, with long oblique prehumeral borders and devoid of distinct shoulders; sides narrowly bordered, proximally complete to basal peduncle, minutely ciliated throughout though not surrulate; dorsum completely glabrous and polished, steeply declivous in marginal parts; striae either very shallow and impunctate (*T. ovicollis*) or deeply impressed and coarsely punctate (*T. globipennis*), either evanescent at the side (*T. ovicollis*) or shallowly impressed even at the side (*T. globipennis*); scutellar striole absent; apical striole either absent (*T. ovicollis*) or rudimentary (*T. globipennis*); interval 1 very narrow, disappearing in apical part in *T. ovicollis*; stria 3 with two setiferous dorsal pores; preapical pore located at the upper part of apical declivity, either adjoining or on the site of stria 3, and widely distant from apex; only one apical pore present behind the level of the 8th pore of the marginal umbilicate series; humeral set of marginal umbilicate pores not aggregated, the 1st pore removed backwards and located on or a little behind the level of the 3rd, which is slightly distant from marginal gutter, the 4th widely distant from the other three and also from marginal gutter; the two umbilicate pores of the middle set moderately, and the 7th umbilicate pore widely distant from marginal gutter.

Ventral surface either with a few hairs on gula and prosternum (*T. ovicollis*) or glabrous on the venter of fore body (*T. globipennis*); visible sternites 2 and 3 of abdomen fused together, 3–5 each with one or two pairs of paramedian setae along the posterior margin, the inner pair being much smaller than the outer and rather frequently missing, several additional short hairs often present at the median part of each sternite; anal sternite with a pair of marginal setae in ♂, with two pair of them in ♀. Legs long and slender, wholly pubescent; protibiae not externally grooved; tarsi fairly stout, tarsomere 4 with a hyaline ventral apophysis in pro- and mesotarsi; in ♂, protarsomeres 1 and 2 moderately dilated, inwardly denticulate at the apices, and furnished

beneath with adhesive appendages; protarsomeres 3 and 4 short, each only slightly wider than long.

Male genital organ small and lightly sclerotized. Aedeagus tubular, slender and arcuate, with flattened apical lobe and relatively small basal part, the latter of which bears a large sagittal aileron; inner sac armed with an anisotopic copulatory piece and devoid of teeth-patches. Styles broad, rounded at apices, each provided with a circle of six setae; left style devoid of ventral apophysis.

Range. Known so far from two limestone caves in northwestern Hunan and southwestern Hubei in Central China.

Notes. It is difficult to determine the true systematic position of the present genus. It is similar to the members of the *Cathaiaphaenops* lineage, above all to *Junaphaenops* S. UÉNO (1997, p. 15), in the narrow fore body, strongly convex elytra with ciliated lateral margins, fused labium with more than six submental setae, and the elytral chaetotaxy including the characteristic position of the first pore of the marginal umbilicate series. On the other hand, *Toshiaphaenops* differs clearly from *Junaphaenops* in the evolutionary trend of facies, particularly configuration of the prothorax and the elytra, in the latter of which the humeral angles become effaced as in *Dongodytes*.

As will be shown on later pages, the humeral angles of the elytra are prominent in another new genus, *Shenaphaenops*, as in *Sinaphaenops* S. UÉNO et WANG (1991, p. 128; UÉNO & RAN, 1998), though this new genus is similar in many other respects to *Toshiaphaenops*. Because of the similarity in elytral conformation and in other details, *Shenaphaenops* will be regarded as a probable relative of *Junaphaenops*, but I cannot express the same view on *Toshiaphaenops*. Thus, only the remaining candidate for the relative of *Toshiaphaenops* may be *Dongodytes* DEUVE (1993, pp. 292, 295; UÉNO, 1998 b, p. 4) from northwestern Guangxi, but still, there is a very wide gap between the two genera, particularly in the chaetotaxy of the head and the elytra beside the striking difference in habitus. In short, phylogenetic position of *Toshiaphaenops* is ambiguous at the present moment, and we have to wait for further investigations of the cave trechine fauna of China to clarify the true affinity of *Toshiaphaenops* on a sounder basis.

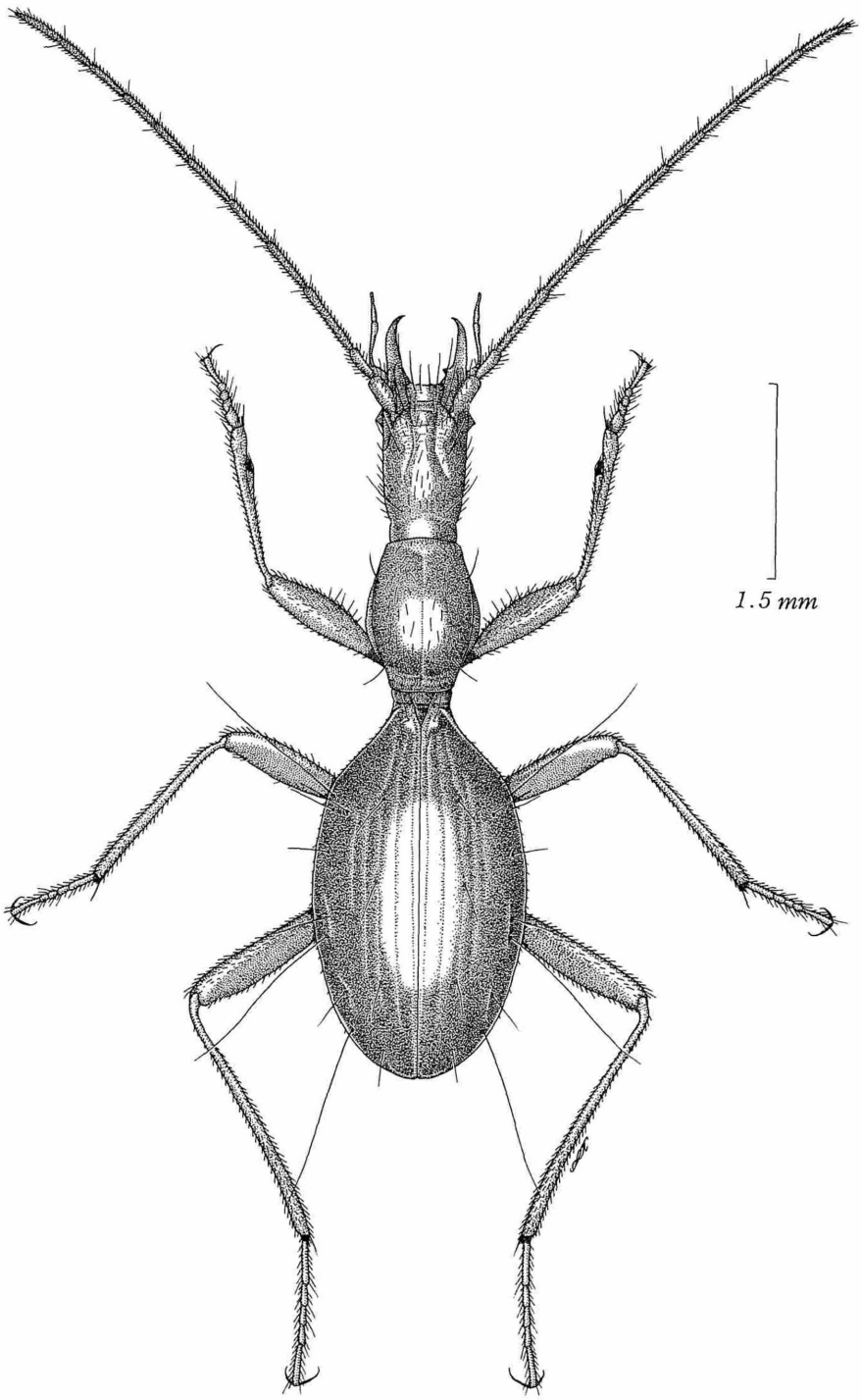
This remarkable new genus is dedicated to Toshio KISHIMOTO, who collected all the known specimens of the two species of *Toshiaphaenops*.

Toshiaphaenops ovicollis S. UÉNO, sp. nov.

(Figs. 1–3)

Length: 4.85–5.20 mm (from apical margin of clypeus to apices of elytra); 5.40–5.85 mm (including mandibles).

Fig. 1. *Toshiaphaenops ovicollis* S. UÉNO, gen. et sp. nov., ♂, from Feihu Dong Cave at Huoyan, northwestern Hunan.

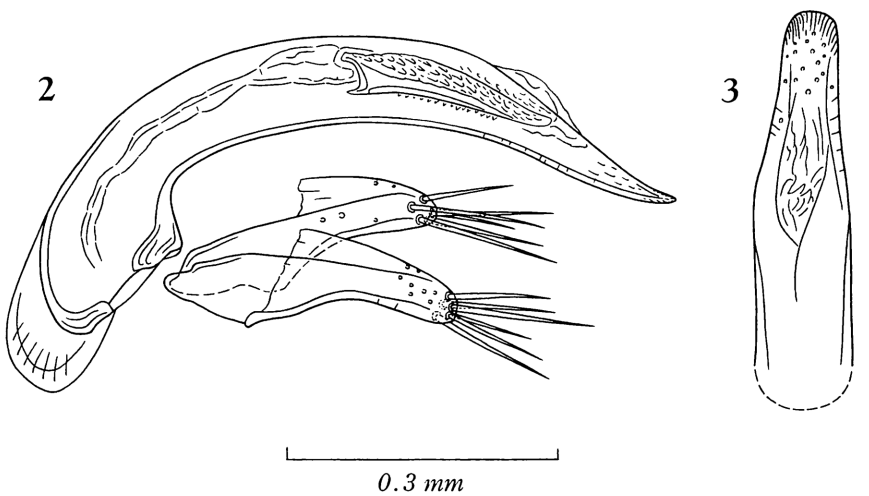

1.5 mm

Body elongate, with ovate prothorax and elongated oval elytra. Colour dark reddish brown, exceptionally dark for a truly aphaenopsoid species, polished and not iridescent; palpi and three or four apical segments of antennae yellowish brown, more or less lighter in colour than the other parts.

Head elongate, about two-thirds as wide as long, though slightly shorter than prothorax, HL/PL 0.89–0.96 (M 0.92), subparallel-sided in apical half and then gradually narrowed to neck constriction, which is about three-fourths as wide as the widest part; neck separated from occiput by a shallow but distinct transverse impression of neck constriction, and gently dilated posteriad; dorsum gently convex, behind middle in particular, and rather densely covered with fairly long hairs; frontal furrows deeply impressed though abruptly ending posteriad at about middle; supraorbital setae lying on lines convergent posteriorly, the anterior pair being located at about apical two-fifths just behind antennal sockets and the posterior at about basal sixth just before neck constriction; in the holotype, an extra supraorbital seta present on the right side between the two ordinary ones; genae only slightly convex and rather densely covered with fairly long hairs, which spread ventrad onto subgenae; labral apical margin slightly emarginate or slightly bisinuate. Antennae very slender, reaching apical fourth to fifth of elytra.

Prothorax ovate, much wider than head, evidently longer than wide, widest at about four-ninths from base, and more gradually narrowed towards apex than towards base; PW/HW 1.34–1.38 (M 1.37), PL/PW 1.19–1.29 (M 1.23). Pronotum fairly wide, obovate, widest at about four-sevenths from base, and almost equally narrowed in front and behind; PNW/HW 1.24–1.26 (M 1.25), PL/PNW 1.31–1.40 (M 1.35); lateral margins finely bordered, the borders visible throughout from above, nearly straight or very feebly arcuate in front, moderately so at middle, slightly and briefly sinuate at about basal seventh, and then convergent towards rounded hind angles; posterior marginal seta widely distant from hind angle, being located at about basal two-ninths well before ante-basal sinuation; apex either straight or feebly arcuate, rounded on each side and devoid of distinct front angles; base more or less narrower than apex, nearly straight except for postangular portions; PNW/PA ca. 1.59–1.67 (M ca. 1.62), PNW/PB ca. 1.71–1.73 (M ca. 1.72), PB/PA ca. 0.93–0.97 (M ca. 0.94); dorsum strongly convex, very steeply declivous before basal transverse sulcus, sparsely covered with fairly long hairs on the disc; median line fine though distinct; apical transverse impression procurved, shallow and mal-defined; basal transverse sulcus deep, basal area narrow and convex. Propleura expanded laterad, more gradually convergent anteriorly than posteriorly, and reaching apical third and ante-basal sinuation.

Elytra ovate, widest at about middle, and more regularly narrowed towards apices than towards bases; EW/PW 1.78–1.86 (M 1.83), EL/PL 2.39–2.54 (M 2.48), EL/EW 1.64–1.70 (M 1.67); shoulders effaced though their position is indicated by very obtuse angle; prehumeral borders oblique and nearly straight except for small anteriormost portions which are slightly outcurved; sides narrowly bordered throughout, gently arcuate, and rather narrowly and conjointly rounded at apices, each without appreciable



Figs. 2–3. Male genitalia of *Toshiaphaenops ovicollis* S. UÉNO, gen. et sp. nov., from Feihu Dong Cave at Huoyan, northwestern Hunan; left lateral view (2), and apical part of aedeagus, dorso-apical view (3).

preapical emargination; dorsum strongly convex, steeply declivous in marginal parts except for briefly subpedunculate bases; striae very shallow and impunctate except stria 1 which is sharply impressed from base to the level of preapical pore, 2–3 and sometimes also 4 more or less traceable, 5 either fragmentary or obsolete, 6–8 evanescent though stria 8 is perceptible between the umbilicate pores of the middle and apical sets; intervals flat with the exception of intervals 1 and 2 which are slightly convex on the disc; stria 3 with two setiferous dorsal pores at about 1/4 and 1/2 from base, respectively, the anterior pore lying at the level of the 2nd pore of the marginal umbilicate series and the posterior between the levels of the 4th and 5th umbilicate pores; preapical pore located at 1/5–1/4 from apex.

Gula sparsely with fairly long hairs; prosternum with several hairs on each side near propleural suture. Legs long; metatibia about two-thirds or a little more as long as elytra, outwardly arcuate in apical two-fifths; tarsi fairly stout, mesotarsus about three-sevenths as long as mesotibia, metatarsus about two-thirds as long as metatibia; tarsomere 1 longer than tarsomeres 2–3 together but shorter than tarsomeres 2–4 together in both meso- and metatarsi.

Male genital organ small. Aedeagus about one-fourth as long as elytra, slender, slightly depressed, and moderately arcuate, behind middle in particular; basal part rather strongly curved ventrad, with small basal orifice whose sides are hardly emarginate; sagittal aileron very large; viewed laterally, apical part gradually tapered to apical lobe, which is slightly reflexed and pointed at the extremity; viewed dorsally, apical part symmetrical, with nearly parallel-sided apical lobe whose tip is widely but not strongly rounded; ventral margin widely emarginate in profile. Copulatory piece elongated spatulate, about one-third as long as aedeagus, dorsally covered with scales, and

slightly reflexed at the blunt apex. Styles broad and rather short, left style longer than the right, each thickened and rounded at the apex which bears a circle of six setae of different length.

Type series. Holotype: ♂, allotype: ♀, paratype: 1 ♂, 20–IX–1997, T. KISHIMOTO leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Limestone cave called Feihu Dong, 260 m in altitude, at Huoyan in Huoyan Xiang of Longshan Xian, northwestern Hunan, Central China.

Notes. Feihu Dong Cave, the type locality of this remarkable new species, is well known for its large size and intricate structure. There are two entrances to it, one small and vertical and the other very large and opening to a huge room. In former times, there was a Buddhist's temple in this huge room, which is now open to tourists. At the back of the room, there is a vertical cliff preventing tourists from going into the deeper parts. Climbing over the cliff, we enter into a narrow winding passage, which is mostly dry but eventually opens into the large humid main passage coming down from the bottom of the vertical entrance. It was at this point that the three specimens of *Toshiaphaenops ovicollis* were obtained. All the three were found from under a piece of decayed split bamboo used by local people for making torches and abandoned on a wet slope crusted with flowstone. We searched for additional specimens both by naked eyes and by baited traps, but all that we were able to obtain was *Cathaiaphaenops delprati* DEUVE (1996, p. 42, figs. 1, 4, 7), a larger semi-aphaenopsoid species which is rather widely distributed in Feihu Dong Cave.

This large cave was first investigated biologically in August 1995 by Louis DEHARVENG and Anne BEDOS, who participated in the "Expédition spéléologique franco-chinoise ⟨⟨Xiangxi 95⟩⟩" under the leadership of Bruno DELPRAT. Since the cave is more than 16 km in total length and has several huge rooms with underground streams, it is impossible to make a thorough biological survey within a short time. Still other discoveries will be made in future, and I believe even a third species of the Trechinae can be expected.

Toshiaphaenops globipennis S. UÉNO, sp. nov.

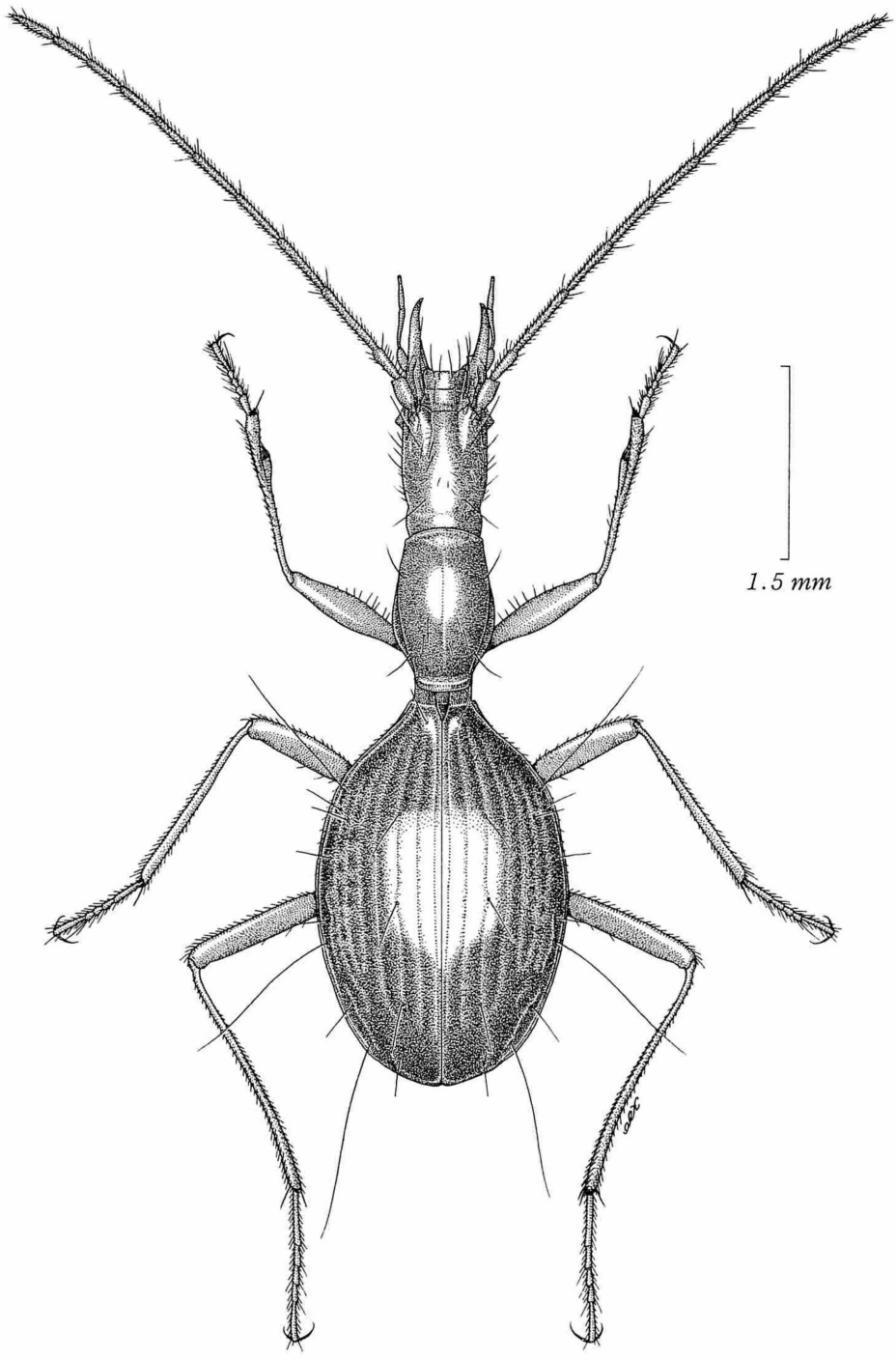
(Fig. 4)

Length: 5.35 mm (from apical margin of clypeus to apices of elytra); 6.10 mm (including mandibles).

Distinguished at first sight from the type species by the narrow prothorax and the hemispherical elytra with deeply impressed and coarsely punctate striae. The two species are also different in many other details as described below.

Slightly larger than the type species. Colour reddish brown, polished, obviously

Fig. 4. *Toshiaphaenops globipennis* S. UÉNO, sp. nov., ♀, from Dishui Dong Cave at Nongjiagai, southwestern Hubei.


1.5 mm

lighter than in the type species though relatively dark among aphaenopsoid trechines; palpi and two or three apical antennomeres paler than the other parts.

Head elongate, about five-eighths as wide as long, HL/PL 0.88, widest just behind the level of antennal sockets and slightly narrowed posteriad in almost straight lines to just before neck constriction, which is not deep but distinct, extending continuously onto both dorsum and venter; neck very transverse barrel-shaped, slightly but distinctly expanded at middle in a ring; dorsum gently convex, sparsely covered with fairly long hairs; frontal furrows deeply impressed in front, feebly arcuate, and abruptly ending at about middle; supraorbital setae as in *T. ovicollis*; genae hardly convex, abruptly constricted posteriad by transverse impression of neck constriction, and rather sparsely covered with fairly long hairs which spread ventrad onto subgenae; antennae long, reaching apical fifth of elytra.

Prothorax elongate, wider than head, much longer than wide, widest at two-fifths from base, and more gradually narrowed towards apex than towards base; PW/HW 1.20, PL/PW 1.51. Pronotum elongate, widest at three-fifths from base, and a little more gradually narrowed towards apex than towards base; PNW/HW 1.15, PL/PNW 1.57; lateral margins finely bordered, the borders visible throughout from above, nearly straight in front except near front angles, gently so behind the widest part, shallowly sinuate at about basal eighth, and then slightly convergent towards rounded hind angles; posterior marginal seta widely distant from hind angle as in *T. ovicollis*, being located at about basal two-ninths; apex arcuate, with front angles very obtuse; base narrower than apex, feebly arcuate at middle and anteriorly rounded on each side at hind angle; PNW/PA ca. 1.42, PNW/PB ca. 1.71, PB/PA ca. 0.83; dorsum strongly convex, steep at the sides and particularly before basal transverse sulcus, with three hairs on each side of median line at about two-fifths from base; median line fine though sharply impressed; apical transverse impression shallow, procurved; basal transverse sulcus deep, clearly separating narrow convex basal area from the disc. Propleura not much expanded laterad though clearly visible from above except for apical two-fifths, more gradually convergent anteriad than posteriad and posteriorly reaching ante-basal sinuation.

Elytra suborbicular with subpedunculate basal parts, widest at the middle, and a little more gradually narrowed towards apices than towards bases; EW/PW 2.40, EL/PL 2.39, EL/EW 1.50; shoulders completely effaced; prehumeral borders oblique, very slightly sinuate, with outcurved anteriormost portions; sides narrowly bordered throughout, moderately arcuate before middle, a little less so behind, and rather widely and conjointly rounded at apices, each without appreciable preapical emargination; dorsum hemispherically convex, very steeply declivous at the sides and in basal parts; striae deeply but not sharply impressed and coarsely punctate, becoming shallower at the side though even stria 7 is fragmentarily traceable, stria 1 approaching to suture posteriorly, stria 8 obsolete before the middle set of marginal umbilicate pores; apical striole rudimentary, not sharply impressed; intervals gently convex on the disc but flat at the side; stria 3 with two setiferous dorsal pores at about 2/9 and 1/2 from base, re-

spectively; preapical pore located at apical sixth.

Ventral surface glabrous in fore body; abdominal sternites 3–5 each with a few additional hairs at the median part. Legs slenderer than in *T. ovicollis*; metatibia two-thirds as long as elytra, outwardly arcuate in apical two-fifths; tarsi thin, mesotarsus about three-fifths as long as mesotibia, metatarsus about two-thirds as long as metatibia; tarsomere 1 about as long as tarsomeres 2–4 together in mesotarsus, shorter than that but longer than tarsomeres 2–3 together in metatarsus.

Male unknown.

Type specimen. Holotype: ♀, 23–IX–1997, T. KISHIMOTO leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Limestone cave called Dishui Dong, 830 m in altitude, at Nongjiagai of Laoli Xiang in Xianfeng Xian, southwestern Hubei, Central China.

Notes. Though considerably different in details, above all in the conformation of the elytra, the present species should be congeneric with *T. ovicollis* in view of the fact that many diagnostic characters are shared by the two trechines. They are identical in the dark-coloured body practically devoid of microsculpture, conformation of buccal appendages including the mandibles and the labium, the elongate prothorax with expanded propleura and anteriorly removed posterior marginal setae, the strongly convex and glabrous elytra devoid of appreciable shoulders and with lateral margins minutely ciliated, degeneration of the scutellar and apical strioles, characteristic arrangement of the preapical, apical and marginal umbilicate pores, and conformation of the protibiae. Unfortunately, male is unknown of the present species, but we can safely expect that the aedeagal features of *T. globipennis* are basically similar to those of *T. ovicollis*.

The single known specimen of *T. globipennis* was found leisurely crawling on the vertical wall about 60 cm above the floor some 150 m inside Dishui Dong Cave. This large cave is a ponor opening at the bottom of a deep valley about 5 km north-northwest of Xianfeng, and is more than 2 km long. A narrow stream flows into the cave from the large entrance, and carries various plant residue for a considerable distance, most probably in the rainy season. A new *Cathaiaphaenops* was found around the organic matters both on the floor and on the wall, but the spot at which the *Toshiaphaenops* was met was well above the stream-bed and beyond the reaches of floods. Incidentally, the air temperature on September 23rd, 1997 was 16°C near the collecting site of the beetle.

Genus ***Shenaphaenops*** S. UÉNO, nov.

Type species: *Shenaphaenops humeralis* S. UÉNO, sp. nov.

Erected for a small aphaenopsoid trechine beetle similar in many respects to *Toshiaphaenops*, but decisively different from the latter in the coarse body surface wholly covered with pubescence and with microsculpture at least on head and pronotum, the absence of the posterior pair of marginal setae and transverse basal sulcus on

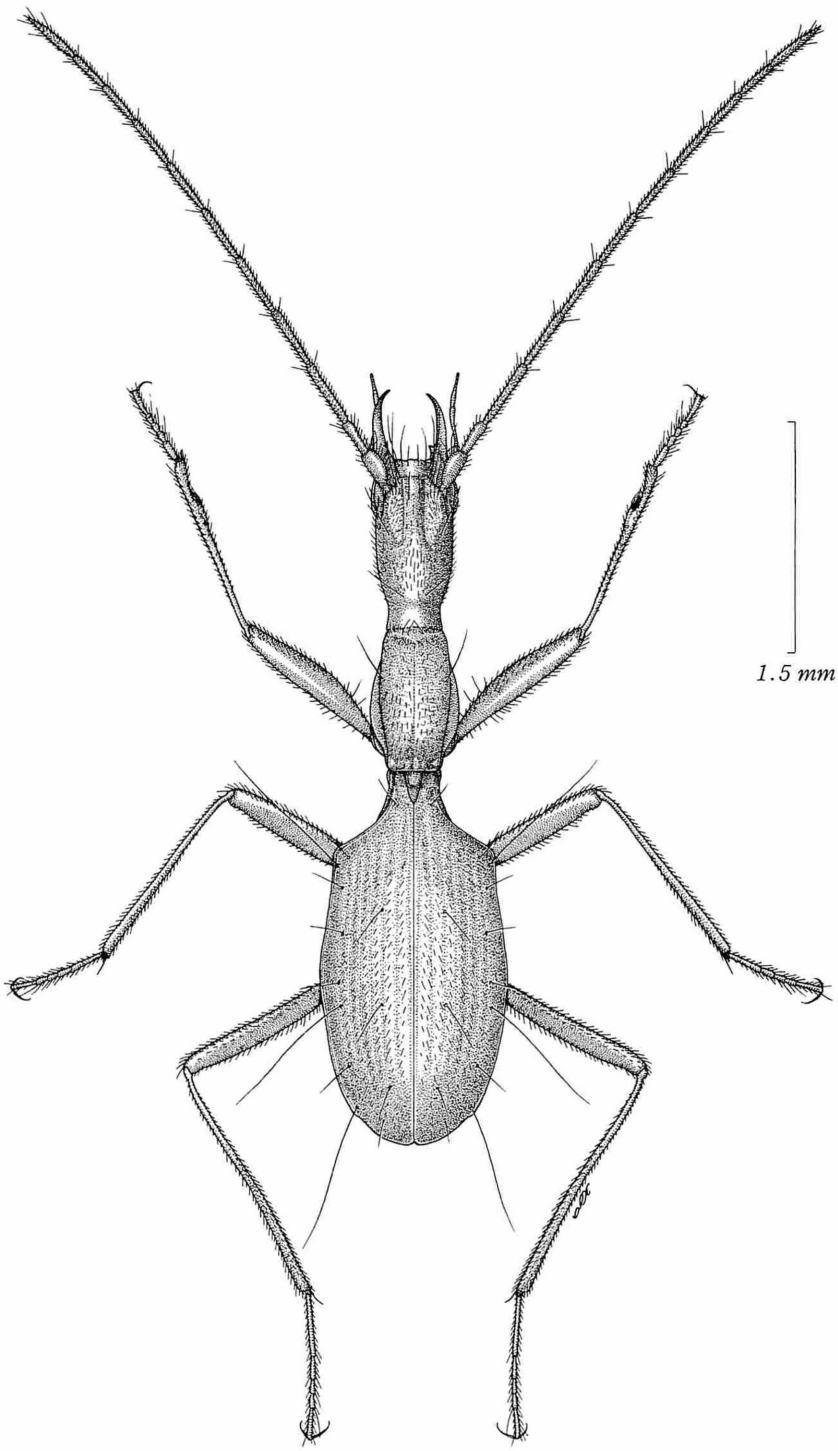
pronotum, prominent humeral angles of elytra, and the position of the first pore of the marginal umbilicate series, which is located evidently before the level of the second. Colour light reddish brown, not so dark as in *Toshiaphaenops*.

Head elongate, much longer than wide, widest behind the middle, and densely pubescent except near neck constriction; frontal furrows incomplete, deeply impressed and very feebly arcuate in anterior third before the level of anterior supraorbital setae, then outcurved and abruptly obsolete; two widely distant pairs of supraorbital setae present on lines convergent posteriorly, a pair of subgenal setae present though not so remarkable as in *Toshiaphaenops*; eyes completely absent; genae slightly convex behind middle; neck constriction shallow though distinct; clypeus fairly narrow, quadrisetose. Labrum transverse, with the apical margin bisinuate, subtruncate at the middle. Mandibles as in *Toshiaphaenops*. Mentum fused with submentum, the former with a porrect tooth in apical emargination, which is truncate at the tip, the latter bearing a transverse row of 10 setae; ligula and maxillae as in *Toshiaphaenops*; palpi as in *Toshiaphaenops*, but the penultimate segment of labial palpus bears only two inner setae. Antennae long and very thin, reaching apical sixth of elytra, though structurally similar to those of *Toshiaphaenops*.

Prothorax elongate, wider than head, much longer than wide, widest obviously behind the middle, and a little more contracted at apex than at base. Pronotum narrow, widest before the middle, finely bordered at the apex and sides, with only a pair of anterior marginal setae at the widest part and devoid of the posterior pair; lateral margins briefly sinuate just before hind angles which are rounded at the corners; basal transverse impression uneven, not forming a continuous transverse sulcus; disc pubescent and with fine transverse striations. Propleura tumid, swollen out laterad in basal two-thirds except for basal area. Scutellum small though distinct.

Elytra fused together, subpedunculate at the bases, much wider than prothorax, much longer than wide, with prominent humeral angles and long emarginate prehumeral parts; sides narrowly bordered throughout, the border continuing to apex and curving round to interval 1; dorsum strongly convex, steeply declivous in marginal parts; striae not sharply impressed particularly at the sides, coarsely and irregularly punctate or rather subvariolate, both scutellar and apical strioles absent; interval 1 very narrow, almost disappearing behind middle, other intervals more or less irregular due to variolation, each bearing an irregular row of pubescence, which partly forms two or even three rows; stria 3 with two setiferous dorsal pores, the anterior one of which is widely distant from the base; preapical pore located at the apical end of stria 3, which does not form apparent anastomosis with stria 2, and about twice more distant from apex than from suture; only one apical pore present latero-apical to preapical pore, the posterior apical one absent; humeral set of marginal umbilicate pores not aggregated, the 1st pore not adjoining marginal gutter but located inside the humeral angle evi-

Fig. 5. *Shenaphaenops humeralis* S. UÉNO, gen. et sp. nov., ♀, from Shen Dong Cave at Muqiao Cun in Shuicheng Xian, northwestern Guizhou.


1.5 mm

dently before the level of the 2nd, the 3rd pore not adjoining marginal gutter though close to the 2nd, the 4th widely distant from the 3rd and also from the marginal gutter; umbilicate pores of the middle set and the 7th pore widely distant from marginal gutter but the 8th pore is closely located to the gutter.

Ventral surface including gula and coxae more or less densely pubescent; visible sternites 2 and 3 fused together, 3–5 each with a pair of paramedian setae along the posterior margin, anal sternite with two pair of marginal setae in ♀. Legs very long and slender, wholly pubescent though rather sparsely on femora; protibiae not externally grooved, each briefly arcuate at the apical portion; tarsi thin, tarsomere 4 with a long hyaline ventral apophysis in pro- and mesotarsi.

Secondary sexual and male genitalic characters unknown.

Range. Known so far from only a limestone cave in Liupanshui Shi in northwestern Guizhou, South China.

Notes. Though similar in many respects to *Toshiaphaenops*, this new genus may have a closer affinity to *Junaphaenops* S. UÉNO (1997, p. 15) from eastern Yunnan. Both occur in the subterranean domain of the Yungui Highlands and share characteristic conformation of the elytra — highly convex on the dorsum and with prominent shoulders, a peculiarity that is rather unusual for troglobiontic trechines. In *Toshiaphaenops*, on the other hand, the elytral shoulders are completely effaced as in many advanced cave trechines including Chinese *Dongodytes*. If such a difference really reflects phylogenetic discrepancy, both *Shenaphaenops* and *Junaphaenops* must belong to the *Cathaiaphaenops* lineage whose components may be widely distributed in South-Central China, and the close resemblance between *Toshiaphaenops* and *Shenaphaenops* can be regarded as the result of parallel evolution. Unfortunately, only one female of the type species of *Shenaphaenops* has so far been obtained, and besides, our knowledge is still fragmentary as regards the trechine fauna of Chinese caves. Further investigations of the cave fauna are therefore needed for clarifying true relationships of the trechine genera hitherto known from Chinese caves, above all in northeastern Yunnan, southern Sichuan, eastern Guizhou and southwestern Hunan.

The new generic name *Shenaphaenops* is derived from a combination of the Chinese word *Shen* (meaning a god) and *Aphaenops*, since its type species was discovered in the limestone cave called Shen Dong which means the Cave of God.

Shenaphaenops humeralis S. UÉNO, sp. nov.

(Fig. 5)

Length: 4.35 mm (from apical margin of clypeus to apices of elytra); 4.90 mm (including mandibles).

Body elongate, with narrowly stretched fore body and relatively large elytra; surface wholly pubescent on both dorsum and venter, and more or less coarsely sculptured, particularly on elytra. Concolorously light reddish brown, shiny; palpi, apical segments of antennae, tarsi and venter of hind body yellowish brown, more or less

paler than the other parts of body.

Head elongate, slightly longer than prothorax, HL/PL 1.04, about five-ninths as wide as long, subparallel-sided in apical three-fifths and then narrowed posteriorly towards shallow neck constriction; neck gently dilated posteriad; dorsum moderately convex behind the level of anterior supraorbital setae, which are closer to side margins than to frontal furrows in dorsal view; microsculpture consisting of irregularly oblique, fine transverse lines near frontal furrows but of coarse polygonal meshes in other parts. Antennae long and very thin, reaching apical sixth of elytra; pedicel about as long as scape but about seven-tenths as wide as the latter, about a half as long as segment 3, which is about 1.2 times as long as segment 4 or 5 and about 6 times as long as wide; segments 6–10 gradually decreasing in length towards apex, each cylindrical, segment 7 nearly 4.5 times as long as wide; terminal segment about as long as segment 6, obviously longer but narrower than scape.

Prothorax elongate, widest at three-eighths from base, and more gradually narrowed towards apex than towards base; PW/HW 1.15, PL/PW 1.58. Pronotum narrow, slightly narrower than head, widest at four-sevenths from base, and not much narrowed towards the two ends; PNW/HW 0.91, PL/PNW 1.99; lateral margins finely bordered throughout, slightly arcuate ventrad near front angles and not visible from above at those portions, nearly straight before the widest part, very feebly arcuate behind there, slightly sinuate at about basal eighth, and then slightly divergent posteriad; apex feebly arcuate, postero-ventrally rounded on each side and devoid of distinct front angles; base slightly wider than apex, nearly straight at middle, and anteriorly rounded on each side at hind angle; PNW/PA ca. 1.33, PNW/PB ca. 1.25, PB/PA ca. 1.07; dorsum longitudinally convex, rather densely pubescent, closely covered with fine transverse striations and fine transverse lines of microsculpture, the latter of which fill in the spaces among the former; median line fine but distinct, briefly widened in basal area; apical transverse impression procurved, basal transverse impression fairly deep though uneven; both apical and basal areas narrow. Propleura strongly convex, more gradually convergent anteriad than posteriad and extending to apical third in dorsal view, roundly convergent posteriad to ante-basal sinuation.

Elytra elongate with subpedunculate basal parts, much wider than prothorax, widest at about middle, and a little more gradually narrowed towards humeral angles than towards apices; EW/PW 2.08, EL/PL 2.31, EL/EW 1.76; humeral angles prominent, almost tuberculate; prehumeral borders almost straightly oblique before humeral angles but outwardly arcuate in front and complete to basal peduncle; sides narrowly bordered throughout, the borders somewhat widened at humeral angles, slightly sinuate behind them, feebly arcuate to distinct preapical emargination, and then almost conjointly and rather narrowly rounded at apices; dorsum strongly convex, steeply declivous at the sides and in apical areas, and rather flatly and steeply declivous before the level of humeral angles; microsculpture obliterated; striae fairly deep on the disc but not sharply carved except stria 1, which approaches closely to suture in apical half, striae 2–4 almost entire though irregular due to variolation, outer striae more fragmen-

tary, stria 8 not deepened in apical part; intervals irregularly nibbled at the sides by variolation, apical carina absent; stria 3 with two setiferous dorsal pores at about 1/3 and 2/3 from base, respectively, the anterior one lying between the levels of the 3rd and the 4th pores of the marginal umbilicate series and the posterior one just before the level of the 6th pore; preapical pore located at apical seventh.

Ventral surface and legs as described under the genus. Metatibia about three-fourths as long as elytra, outwardly arcuate in apical two-fifths. Tarsi slender; mesotarsus a little more than a half as long as mesotibia, metatarsus nearly two-thirds as long as metatibia; tarsomere 1 about as long as tarsomeres 2–4 together in both meso- and metatarsi.

Male unknown.

Type specimen. Holotype: ♀, 16–IX–1998, S. UÉNO leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Limestone cave called Shen Dong, 1,860 m in altitude, at Muqiao Cun of Laoyingshan Zhen in Shuicheng Xian, Liupanshui Shi, northwestern Guizhou, South China.

Notes. The type locality of this interesting new species, Shen Dong Cave, is a subvertical ponor opening at the lowest corner of a large doline located to the east-northeast of Shuicheng. It was open to tourists in former times, but is abandoned now, containing many rotten logs and bamboos previously used for constructing steps, ladders and bridges. From the bottom of the entrance shaft, the main passage extends rather horizontally and branches out narrower side passages, most of which are vertical. A new *Guizhaphaenops* is rather commonly found in various parts of the cave, but the present species seems extremely rare. Only the single known specimen of the latter was found from beneath a fist-sized stone lying on the wet muddy floor fed by trickling water at the bottom of the entrance shaft, together with two specimens of the *Guizhaphaenops*. It was not so agile as the larger species, but tried to escape into a crevice of the nearby side wall.

要　　約

上野俊一：中国中南部産アシナガメクラチビゴミムシ類の2新属3新種．—— 中国中南部の湖南省北西部，湖北省南西部および貴州省北西部の石灰洞から，アシナガメクラチビゴミムシ類の2新属3新種を記載し，それぞれに*Toshiaphaenops ovicollis* S. UÉNO, *T. globipennis* S. UÉNOおよび*Shenaphaenops humeralis* S. UÉNOの新名を与えた．ふたつの新属は一見たがいによく似ているが，上翅の形状にいちじるしい相違があり，異なった2系統のものが収斂現象によって，同じような形態をもつようになったのではないかという考えを否定しきれない．3番めの種の雄が将来みつかった段階で，類縁関係の再検討をする必要がある．

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Elytra, Tokyo, **27** (2): 633–634, November 13, 1999

A New *Cychropsis* (Coleoptera, Carabidae) from Mt. Namcha Barwa in Southeast Tibet

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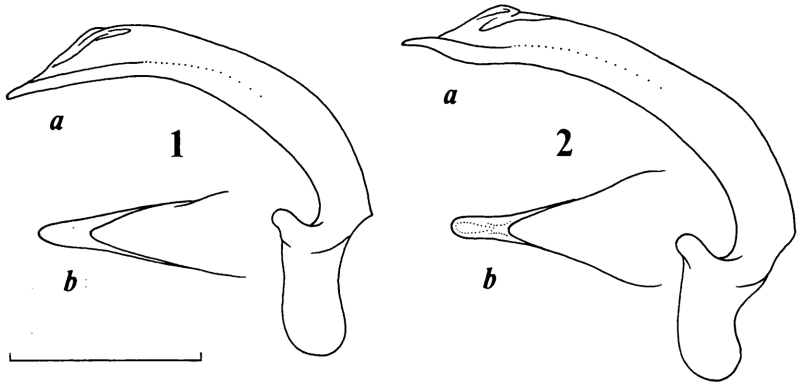
Through the courtesy of Mr. Jan FARKAČ (Prague), I recently had an opportunity to examine the *Cychropsis* specimens collected on Mt. Namcha Barwa in Southeast Tibet. Though resembling *C. businskyi*, the species in question bears several peculiarities which seem to be of specific importance. It is therefore described as follows.

Cychropsis namchabarwana IMURA, sp. nov.

Description. Length: 15.8–18.4 mm (including mandibles). Entirely black and rather strongly polished, with a faint dark bluish tinge on the dorsal surface. Closely allied to *Cychropsis businskyi* DEUVE (1992, p. 272, figs. 16, 21), but distinguishable from it by the following points: 1) body a little larger in size and slenderer; 2) vertex much less frequently punctate; 3) antennae longer, extending beyond basal three-fifths of elytra in male; 4) pronotum with the disc



Figs. 1–2. Male genitalia of *Cychropsis* spp. —— 1, *Cychropsis businskyi* DEUVE from Pass Sêrkyim La (NE. of Nyingchi); 2, *C. namchabarwana* sp. nov. from Mt. Namjagbarwa Feng; a, aedeagus in right lateral view; b, apical part of aedeagus in dorsal view. Scale: 2 mm for a, 1 mm for b.

more sporadically punctate, hind angles more sharply pointed, and marginal setae absent; 5) striae between elytral intervals more deeply impressed containing larger punctures; 6) aedeagus different in shape as shown in Fig. 2, less strongly bent ventrad in apical portion whose ventral margin is remarkably sinuate in lateral view; 7) appendages obviously longer and slenderer, above all in male foretibiae and foretarsi.

Type series. Holotype: ♂, Mt. Namjagbarwa Feng [南迦巴瓦峰] (=Mt. Namcha Barwa) at an elevation of 4,400 m, near the northern end of Mêdog Xian [墨脱县] in Nyingchi Diqu [林芝地区], Southeast Tibet (Xizang), VI–1998, in coll. Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. Paratypes: 15♂♂, 5♀♀ (including allotype), same data as for the holotype, in colls. Y. IMURA, K. MIZUSAWA, J. FARKAČ and A. PLUTENKO.

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Elytra, *Tokyo*, **27** (2): 635–641, November 13, 1999

Distributional Boundaries of the Geographic Races of *Damaster blaptoides* (Coleoptera, Carabidae) in Northeastern Japan as Deduced from Mitochondrial ND5 Gene Sequences

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Abstract The phylogenetic relationships of the geographic races of *Damaster blaptoides* inhabiting Hokkaido and the northeastern Tôhoku district, respectively, are analysed using mitochondrial NADH dehydrogenase subunit 5 (ND5) gene sequences. The distributional boundaries of the races do not coincide with those settled for the subspecies. The phylogenetic trees suggest that *D. b. viridipennis* inhabiting north of the Yoneshirogawa–Mabechigawa (Y–M line) is consubspecific with *D. b. rugipennis* in Hokkaido, while that inhabiting south of the line is distinct either from the above race, or from *D. b. babaianus* distributed in the southern Tôhoku district. The trees also suggest that *D. b. rugipennis* in Hokkaido would have been established by invasion of *D. b. viridipennis* of the northern Tôhoku population through the past land-bridges between the Tsugaru Peninsula and Hokkaido.

Introduction

Damaster (s. str.) has been treated as a single species, *blaptoides*, consisting of seven to eight subspecies or geographic races (NAKANE, 1960; ISHIKAWA, 1991). According to these morphological studies, *D. b. rugipennis* and *D. b. viridipennis* are distributed in Hokkaido and in the northern Tôhoku district, respectively, separated by the Tsugaru Straits. The molecular phylogenetic analysis has shown that the distribution of *Damaster blaptoides* is tightly linked to the geohistory of the Japanese Islands. The *Damaster* ancestor first split into two lineages, eastern (E) and western (W), which were further divided into three [HKD (Hokkaido), NTK (northern Tôhoku) and STK (southern Tôhoku)] and five (KTO, CBU, KII, WJN and KYU) geographically linked sublineages (or races), respectively (SU *et al.*, 1998). SU *et al.* (1998) also found that the so-called *D. b. viridipennis* specimens from the northernmost localities in the Tôhoku district form a cluster HKD with *D. b. rugipennis* in Hokkaido, separated from

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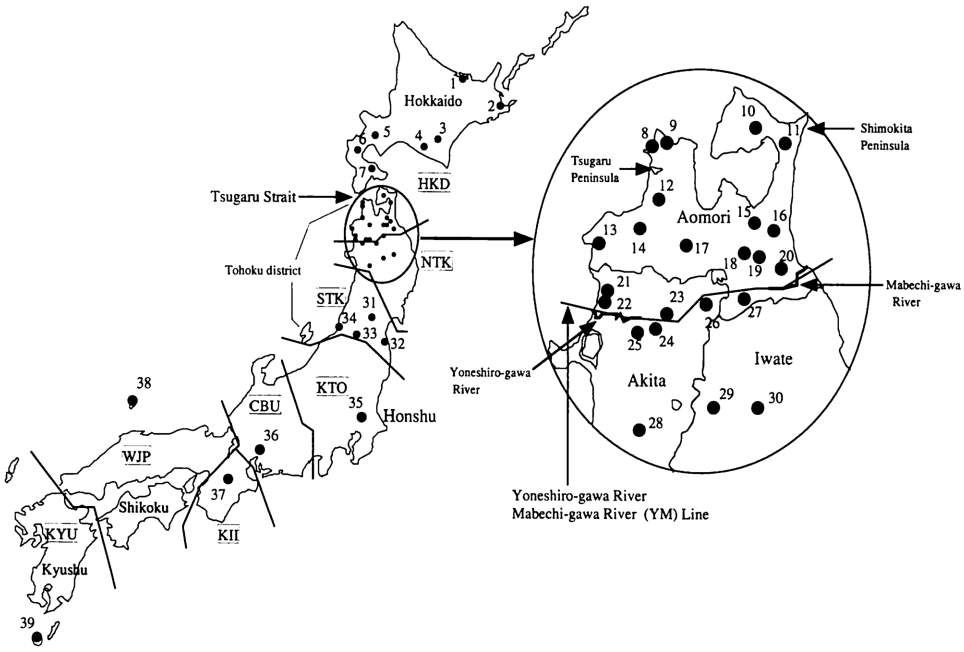


Fig. 1. Locality map of *Damaster* specimens used in this study. Locality numbers correspond to those shown in Table 1 and in Fig. 2. Three-letter codes showing the geographic races (settled by the molecular phylogeny) and the distributional boundaries of the races are according to SU *et al.* (1998).

what has been identified with *D. b. viridipennis* in NTK. Because of the shortage of specimens from the northern Tôhoku region, the distributional boundary between HKD and NTK has remained somewhat ambiguous. In this study, we have analysed the ND5 gene sequences of additional 15 specimens from this region and established a nearly complete distributional boundary between the two races.

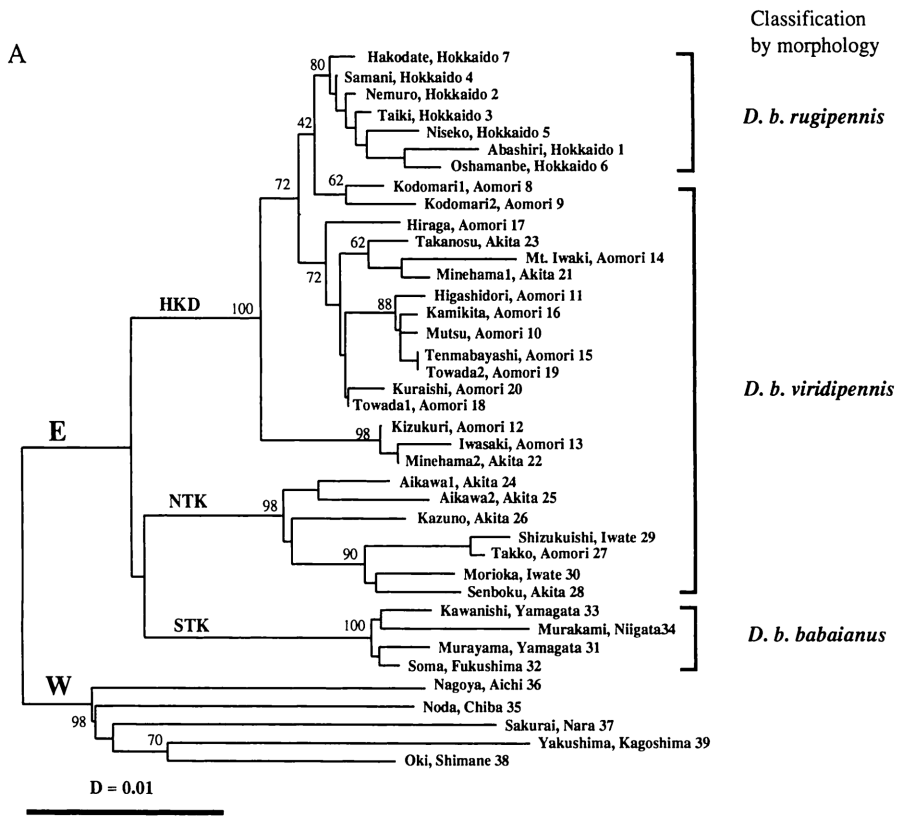
Materials and Methods

Fifteen specimens of *Damaster blaptoides* were collected from various parts of the northern Tôhoku district (Table 1 and Fig. 1), and were used for analyzing the ND5 gene sequences. A single individual from each locality was used for extraction of the total DNA from thorax muscle by proteinase K digestion (KIM *et al.*, 1999). For PCR amplification, sequencing and phylogenetic analyses, see SU *et al.* (1996 a, 1998). Phylogenetic trees were constructed by unweighted pair-group method with arithmetic mean (UPGMA) (KUMAR *et al.*, 1993), and neighbor-joining (NJ) method (SAITOU & NEI, 1987).

Table 1. List of specimens analysed.

Scientific name by morphology	Locality number	Locality	DDBJ/EMBL/GenBank Accession No.
D. b. rugipennis	1*	Abashiri-Shi, Hokkaido	AB013858
	2*	Nemuro-Shi, Hokkaido	AB013859
	3*	Taiki-Cho, Hokkaido	D50351
	4*	Samani-Cho, Hokkaido	AB013860
	5*	Niseko-Cho, Hokkaido	AB013861
	6*	Oshamanbe-Cho, Hokkaido	AB013862
	7*	Hakodate-Shi, Hokkaido	AB013863
D. b. viridipennis	8	Kodomari-Mura 1, Aomori Pref.	AB031304
	9	Kodomari-Mura 2, Aomori Pref.	AB031305
	10	Mutsu-Shi, Aomori Pref.	AB031306
	11*	Higashidori-Mura, Aomori Pref.	AB013864
	12*	Kizukuri-Cho, Aomori Pref.	AB013865
	13*	Iwasaki-Mura, Aomori Pref.	AB013866
	14*	Iwaki-Cho, Aomori Pref.	D50428
	15	Tenmabayashi-Mura, Aomori Pref.	AB031307
	16	Kamikita-Cho, Aomori Pref.	AB031308
	17	Hiraga-Cho, Aomori Pref.	AB031309
	18	Towada-Shi 1, Aomori Pref.	AB031310
	19	Towada-Shi 2, Aomori Pref.	AB031311
	20	Kuraishi-Mura, Aomori Pref.	AB031312
	21	Mizusawa-Gawa 1, Minehama-Mura, Akita Pref.	AB031313
	22	Mizusawa-Gawa 2, Minehama-Mura, Akita Pref.	AB031314
	23	Komori, Takanosu-Cho, Akita Pref.	AB031315
	24	Kamisugi, Aikawa-Cho, Akita Pref.	AB031316
	25	Konda, Aikawa-Cho, Akita Pref.	AB031317
	26*	Oyu-Onsen, Kazuno-Shi, Akita Pref.	AB013867
	27	Hanaki-Dam, Takko-Cho, Aomori Pref.	AB031318
	28*	Senboku-Cho, Akita Pref.	AB013868
	29*	Shizukuishi-Cho, Iwate Pref.	AB013869
	30*	Morioka-Shi, Iwate Pref.	AB013870
D. b. babaianus	31*	Murayama-Shi, Yamagata Pref.	AB013931
	32*	Soma-Shi, Fukushima Pref.	AB013932
	33*	Kawanishi-Cho, Yamagata Pref.	AB013933
	34*	Murakami-Shi, Niigata Pref.	AB013934
D. b. oxuroides	35*	Noda-Shi, Chiba Pref.	AB013945
D. b. oxuroides	36*	Nagoya-Shi, Aichi Pref.	AB013954
D. b. blaptoides	37*	Sakurai-Shi, Nara Pref.	AB013962
D. b. brevicaudus	38*	Oki Island, Shimane Pref.	AB013973
D. b. blaptoides	39*	Yakushima Island, Kagoshima Pref.	AB013981

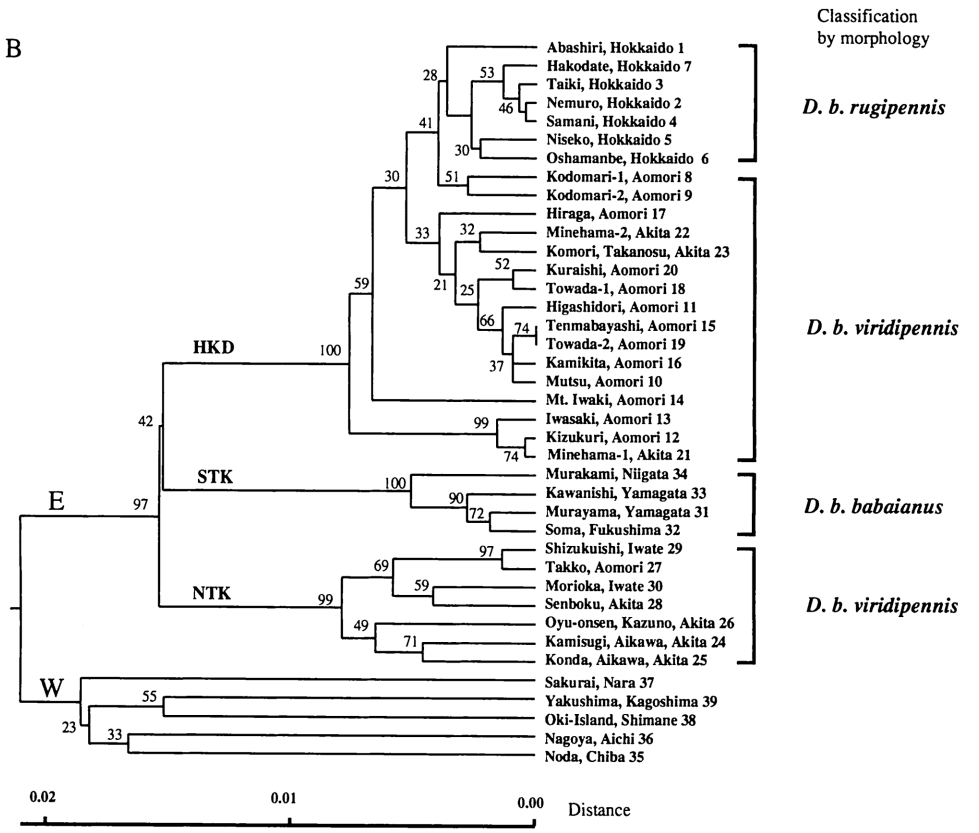
* Taken from Su *et al.*, 1996 b, 1998.



Results and Discussion

Figure 2 shows the ND5 phylogenetic trees for the specimens analyzed, together with those reported by SU *et al.* (1996 b, 1998). As reported in the previous study (SU *et al.*, 1998), two major lineages, the eastern (E) and the western (W), were recognized both in the NJ- and UPGMA-trees. The E lineage was further divided into three (HKD, NTK and STK) and the W lineage into five (Fig. 1) geographically linked sublineages (or races). HKD, NTK and STK in the E lineage were supported by high bootstrap values. They started to diversify almost simultaneously.

The main aim of this study is to settle the distributional boundary between HKD and NTK. As shown in Figs. 1 and 2, HKD consists of specimens from northern Akita Prefecture (loc. nos. 21–23) and those from all over Aomori Prefecture (except No. 27) as well as the *D. b. rugipennis* specimens from Hokkaido. The other three specimens (Nos. 24–26) from northern Akita and one specimen (No. 27) from southern Aomori belong to NTK. These results point to the existence of a boundary between HKD and NTK, running along the Yoneshiro-gawa River in northern Akita and the Mabechi-gawa River in southern Aomori (Y–M line). However, the Y–M line does not necessa-



rily mean that the common ancestor once inhabiting one region was divided into the two races by the river barriers. Perhaps the archipelago formation of the proto-Japanese Islands about 13 million years ago resulted in isolation of proto-HKD and proto-NTK in the separate islands. Following this, the two races expanded their distributions upon an extensive upheaval of the Tôhoku district until they were interrupted by the rivers. The phylogenetic trees show that HKD diversified rather anciently into several clades. The subspecies, *rugipennis* belongs to one of the clades (Fig. 2). It is notable that two specimens of *viridipennis* (loc. nos. 8 and 9) from Kodomari on the Tsugaru Peninsula were closely related to *rugipennis* on the tree (Fig. 2), suggesting that the ancestor inhabiting the northern edge of the Tsugaru Peninsula immigrated to Hokkaido through a land bridge, followed by isolation of the Hokkaido population from the

Fig. 2 (on pp. 638–639). Phylogenetic trees of the mitochondrial ND5 gene (1,069 bp upstream from 3′ terminal stop codon) of *Damaster blaptoides*. The NJ tree (A) and the UPGMA tree (B). The bootstrap confidence level (%) (based on 500 resamplings) is shown at each branching point. Distance denotes KIMURA's two-parameter evolutionary distance (KIMURA, 1980). Not all the known sequences for STK and the W lineage are included in the trees. For details, see SU *et al.* (1998).

Tsugaru population upon formation of the Tsugaru Straits. The population of the Shimokita Peninsula would not have directly participated in this immigration because the specimens from there (loc. nos. 10 and 11) are rather remote from *rugipennis* from Hokkaido on the trees (Fig. 2).

Taxonomic notes. The type locality of *rugipennis* is Hakodate (Des environs de Khokodady), Hokkaido (ADAMS, 1861), while that of *viridipennis* is Aomori (Awomori; probably Aoni and the Tsugaru Peninsula) (LEWIS, 1880). Since *rugipennis* and *viridipennis* in HDK are most probably consubspecific, the latter should be treated as *rugipennis*. *Damaster b. viridipennis* in NTK is phylogenetically distinct from *viridipennis* in HKD, and should be named after careful morphological reexamination.

Acknowledgments

We thank Mr. Yasuaki FUSHIMI for supply of materials. Thanks are also due to Hideko TANAKA for skillful technical assistance.

要　約

金　衝坤・斉藤秀生・冨永　修・蘇　智慧・大澤省三：ミトコンドリアND5遺伝子による日本列島東北部におけるマイマイカブリの“亜種”の分布境界線．—— これまでの形態の研究では，エゾマイマイカブリは北海道だけに，キタカブリは東北地方の青森県・秋田県・岩手県に分布し，2亜種の境界線は津軽海峡であるとされてきた．Suら（1998）による分子系統解析の結果では，東北地方の北部に分布しているキタカブリといわれたものはエゾマイマイカブリと同一系統 (HKD) に属し，エゾマイマイと区別できず，またそれより南部のこれまでキタカブリとされていたものは別系統 (NTK) であることが示された．したがって，津軽海峡はマイマイカブリ亜種の分布境界としての意味をもたないことになり，むしろHKDとNTKの境界が重要となる．しかし，この地域のサンプル数が不足していたため，正確な境界線が確定できなかった．本研究では，Suら（前述）の研究からみて分布境界線であろうと思われる青森県と秋田県／岩手県境を中心に，多数のサンプルのミトコンドリアDNAの分析を行った．その結果，HKDとNTKの分布境界線は，西は秋田県北部の米代川から，東は青森県南部の馬淵川から始まり，ほぼ東西2つの川を境界に，北にはHKD，南にはNTKの分布していることがわかった．本研究で得られた系統樹をみると，より古く青森県の西側に孤立していた集団が，陸地の隆起とともに分布域を広げ，津軽半島を経由して北海道へ進出し，現在のエゾマイマイカブリとなったと考えられる．

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Elytra, *Tokyo*, **27** (2): 641–642, November 13, 1999

The Intertidal Beetle *Amblopusa magna* ZERCHE (Coleoptera, Staphylinidae, Aleocharinae) New to Hokkaido and the Kuril Archipelago

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The intertidal liparocephaline beetle, *Amblopusa magna*, was described and characterized by ZERCHE (1998) from the Pacific coast of Russia. AHN and ASHE (1996) and ZERCHE (1998)

revised the genus *Amblopusa* and recognized four species (*A. brevipes* (CASEY), *A. pacifica* (SAWADA), *A. hokkaidona* AHN et ASHE and *A. magna* ZERCHE), all of which are exclusively distributed in the intertidal zone of northern Pacific coasts.

We have had an opportunity to study this species from the intertidal staphylinid collections deposited in Hokkaido University, and the private collection of Dr. NAOMI. As the result, three species (*A. pacifica*, *A. hokkaidona* and *A. magna*) and one species (*A. magna*) were found from Hokkaido and the Kuril Archipelago, respectively. *Amblopusa magna* is newly recorded from both the areas.

Specimens examined. JAPAN: 1 ex., Todowara, Notsukezaki Pen., Hokkaido, 6–VII–1986, S. NOMURA leg. (NAOMI's private collection); 16 exs., Gokibiru, Atsuta Vill., Hokkaido, under rocks on coarse sandy beach, 24–IV–1999, M. MARUYAMA, I. YAO & J. TAKAHASHI leg. (Systematic Entomology, Hokkaido University, and the author's private collection). RUSSIA: 3 exs., Kuril Archipelago, Simushir Is., 46°58.92′N; 152°01.11′E, inland coastal margin of Srednaya Bay, along cast, under logs and within coarse sand from upper beach zone vegetated with sparse, low-lying, sand-specific plants, 22–VIII–1995, B. K. URBAIN leg. (Systematic Entomology, Hokkaido University); 1 ex., Kuril Archipelago, Urup Is., 45°56.53′N; 150°10.52′E, coastal margin of Negodnaya Bay, environs of Vstrechnyi river valley, under rocks at base of cliff, 29–VIII–1995, M. ÔHARA leg. (Systematic Entomology, Hokkaido University).

We thank Dr. Shun-Ichiro NAOMI (Natural History Museum and Institute, Chiba) for loaning the specimens. The work described here was supported in part by IKIP (International Kuril Islands Project): Japan Society for the Promotion of Science, Grant No. BSAR–401, Prof. Kunio AMAOKA (Laboratory of Marine Zoology, Faculty of Fisheries, Hokkaido University, Hakodate), principal investigator, and International Program Division and the Biological Science Directorate (Biotic Survey and Inventories Program) of the U. S. National Science Foundation, Grant No. DEB–9505031, Prof. Theodore W. PIETSCH (School of Fisheries, Department of Zoology, University of Washington, Seattle, U.S.A.), principal investigator. This research was also partially supported by KOSEF (981–0512–057–2), Republic of Korea to K.-J. AHN.

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Elytra, *Tokyo*, **27** (2): 643–649, November 13, 1999

Origin and Evolution of the *Apotomopterus* Ground Beetles (Coleoptera, Carabidae) as Deduced from Mitochondrial ND5 Gene Sequences

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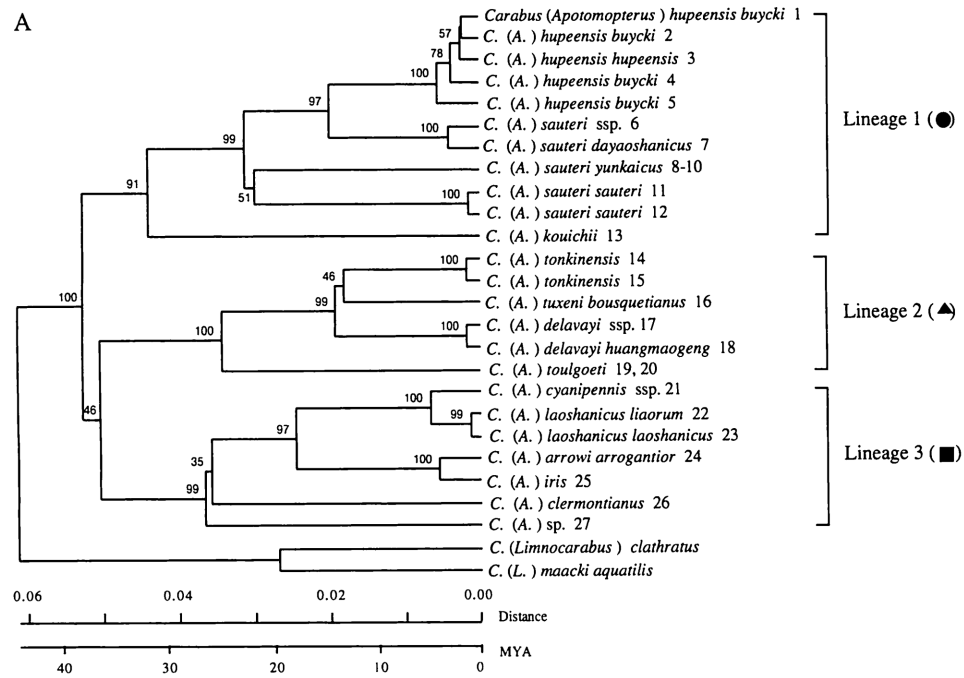
Abstract Phylogenetic trees have been constructed from the mitochondrial NADH dehydrogenase subunit 5 (ND5) gene sequences of 13 species (27 specimens) of *Carabus* (*Apotomopterus*) with *C.* (*Limnocarabus*) *clathratus* and *C.* (*L.*) *maacki* as outgroup. The ND5 trees indicate that there are three main lineages. One of the species, *C.* (*A.*) *sauteri*, is morphologically divided into several subspecies by slight differences. Seven specimens of four *sauteri* subspecies from various localities in mainland China and Taiwan have been classified by the ND5 gene sequences into three clades with their ancient separation ca. 22 MYA. *Carabus* (*A.*) *hupeensis*, which shows considerable morphological difference from *C.* (*A.*) *sauteri*, branched off from one of the *sauteri* stems.

Introduction

The subgenus *Apotomopterus* of the genus *Carabus* (s. lat.) comprises nearly 100 species distributed in China and the adjacent regions including Taiwan. In the previous paper (Imura *et al.*, 1998), a phylogenetic tree of the NADH dehydrogenase subunit 5 (ND5) gene sequences from 9 taxa of the subgenus *Apotomopterus* was reported. In the present study, revised phylogenetic trees have been constructed by adding 10 taxa, using two *Limnocarabus* sequences as outgroup. Based on the trees, evolutionary history and diversification pattern within the subgenus *Apotomopterus* are discussed.

Materials and Methods

The species analysed for the ND5 gene sequences including the previously reported ones (Imura *et al.*, 1998) are listed in Table 1. For the analytical methods and construction of the phylogenetic trees, see Su *et al.* (1996, 1998) and Kim, Zhou *et al.* (1999). Using the neighbor-joining (NJ) method (Saitou & Nei, 1987) and unweighted pair-group method with arithmetic mean (UPGMA) (Kumar *et al.*, 1993), the phylogenetic trees were constructed using the sequences containing a 1069 bp 3′-region of the ND5 gene of 19 taxa of the subgenus *Apotomopterus*. Bootstrap analysis was performed for the trees based on 500 resamplings (Felsenstein, 1985). The evolutionary

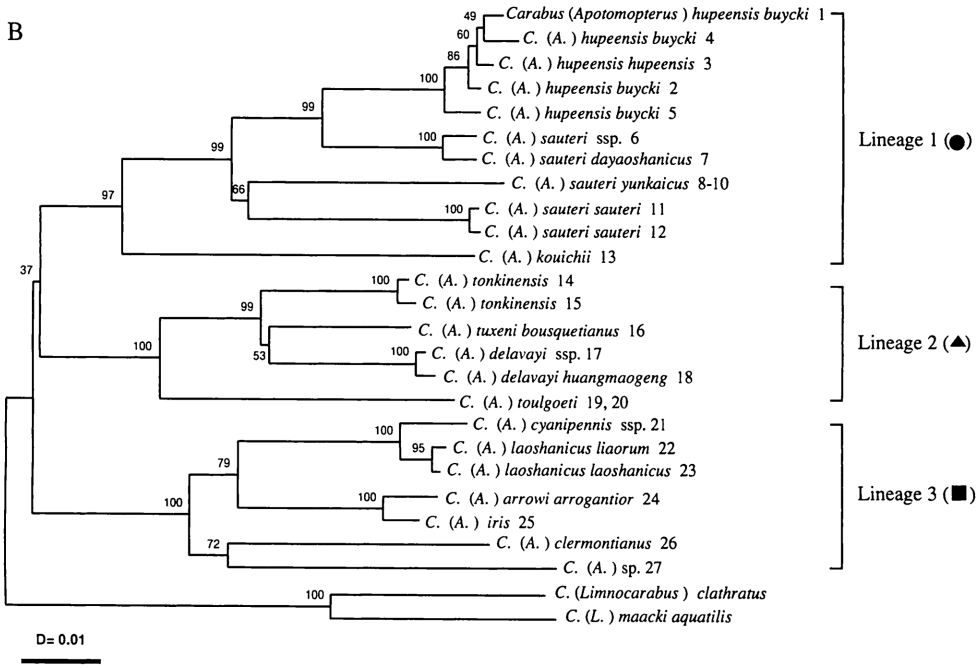


distances (D) were computed by KIMURA's two-parameter method (KIMURA, 1980). For setting the time scale, a 0.01 D unit corresponding to 3.6 million years (MYR) was used (SU *et al.*, 1999).

Results and Discussion

Origin and Phylogeny.

Apotomopterus is the sole subgenus in the division Spinulati of the grand genus *Carabus*, and its members constitute a well-defined monophyletic cluster on the ND5 phylogenetic trees (IMURA *et al.*, 1998). The present phylogenetic trees indicate that there are three main lineages of the *Apotomopterus* species that have been examined (Fig. 1). The first lineage includes *C.* (*A.*) *kouichii* from North Vietnam, *C.* (*A.*) *sauteri* and *C.* (*A.*) *hupeensis* from the Chinese Continent and Taiwan. *Carabus* (*A.*) *kouichii* and *C.* (*A.*) *sauteri* separated long time ago [ca. 32 million years ago (MYA)]. Following this, three *C.* (*A.*) *sauteri* sublineages diverged at about the same time ca. 22 MYA. One of them containing *C.* (*A.*) *s. dayaoshanicus* and *C.* (*A.*) *s.* ssp. also includes five specimens of *C.* (*A.*) *hupeensis*, indicating that *C.* (*A.*) *hupeensis* from various localities branched off from one of the *sauteri* stems. The second lineage contains *C.* (*A.*) *tonkinensis* from North Vietnam and *C.* (*A.*) *toulgoeti*, *C.* (*A.*) *delavayi*, and *C.* (*A.*) *tuxeni* from Central and South China. *Carabus* (*A.*) *toulgoeti* and *C.* (*A.*) *tonkinensis* / *C.* (*A.*) *tuxeni* / *C.* (*A.*) *delavayi* separated ca. 25 MYA, followed by diversifi-



cation of the latter three species ca. 14 MYA. The third lineage consists of *C.* (*A.*) *clermontianus* from North Vietnam, and *C.* (*A.*) *cyanipennis* ssp., *C.* (*A.*) *iris*, *C.* (*A.*) sp. (allied to *C. breuningianus*; IMURA *et al.*, 1999), *C.* (*A.*) *arrowi*, *C.* (*A.*) *laoshanicus liaorum* and *C.* (*A.*) *l. laoshanicus* from Central and South China. *Carabus* (*A.*) *clermontianus* and *C.* (*A.*) sp. separated from a common ancestor ca. 26 MYA, and the remaining species diverged ca. 18 MYA into two sublineages, i.e., *C.* (*A.*) *cyanipennis* / *C.* (*A.*) *laoshanicus liaorum* / *C.* (*A.*) *l. laoshanicus* and *C.* (*A.*) *arrowi* / *C.* (*A.*) *iris*. Further diversification into three and two descendant species took place within the respective sublineages less than 5 MYA.

The origin of *Apotomopterus* is old and can be traced back to the time of the explosive radiation of the Carabina 50–40 MYA (see SU *et al.*, 1999). Thus, *Apotomopterus* may be considered as one of the groups originated upon the radiation. Shortly after the radiation, three lineages shown in Fig. 1 and discussed above diverged almost simultaneously presumably somewhere in the southeastern region of the Chi-

Fig. 1 (on pp. 644–645). Phylogenetic trees of the mitochondrial ND5 gene (1,069 bp upstream from 3′ terminal stop codon) from the *Apotomopterus* species. The UPGMA tree (A) and the NJ tree (B). The bootstrap confidence level (%) (based on 500 resamplings) is shown at each branching point. Distance (D) denotes KIMURA's two-parameter evolutionary distance (KIMURA, 1980). The sequences of the specimens 8–10, and those of 19 and 20 were identical, respectively.

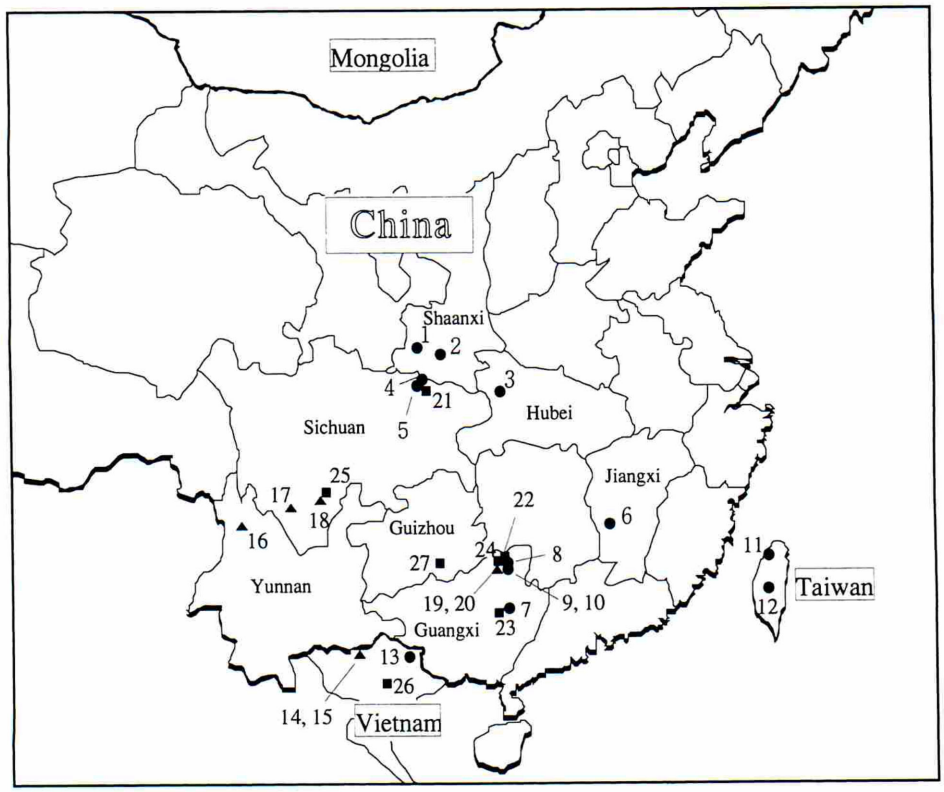


Fig. 2. Map showing the collecting sites of the *Apotomopterus* species used in this study. Numerals correspond to those shown in Table 1 and Fig. 1. ●, lineage 1; ▲, lineage 2; ■, lineage 3.

nese Continent (see fig. 32 of IMURA *et al.*, 1998). Figure 2 and the ND5 trees indicate that the distribution ranges of the three lineages are wide and overlap considerably. No definite distribution boundaries between them can be drawn. This suggests that the *Apotomopterus* ancestor was divided into at least three isolates upon geographic changes of the continent ca. 37 MYA. Then each isolate expanded its distribution to occupy the present habitat.

Pattern of morphological evolution.

Four *sauteri* subspecies, *dayaoshanicus*, *yunkaicus*, *sauteri* and ssp. (population from Mt. Jinggang Shan) differ only slightly from one another, even though they have been classified as subspecies within the same species (IMURA, 1994, 1995 & 1999). However, their separation occurred long time ago, ca. 22 MYA (Fig. 1). *Carabus* (*A.*) *clermontianus* and *C.* (*A.*) sp. are also similar in morphology, but they show a remote phylogenetic relationship, separated ca. 26 MYA. Thus, even if more than two taxa are treated as the same or allied species because of similar morphology, their time of di-

Table 1. List of the *Apotomopterus* specimens used in this study.

Species	Locality No.	Locality	DDBJ/EMBL/GenBank Accession No.
Carabus (*Apotomopterus*) *hupeensis buycki*	1	Feng Xian, SW. Shaanxi, China	AB031483
C. (*A.*) *hupeensis buycki*	2	N. Yang Xian, S. Shaanxi, China	AB031484
C. (*A.*) *hupeensis hupeensis*	3	Shennongjia, W. Hubei, China	AB031485
C. (*A.*) *hupeensis buycki*	4	Micang Shan Mts., NE. Sichuan, China	AB031486
C. (*A.*) *hupeensis buycki*	5	Mt. Guangwu Shan, NE. Sichuan, China	AB031487
C. (*A.*) *sauteri* ssp.	6	Mt. Jinggang Shan, SW. Jiangxi, China	AB031488
C. (*A.*) *sauteri dayaoshanicus*	7*	Mt. Dayao Shan, E. Guangxi, China	AB031489
C. (*A.*) *sauteri yunkaicus*	8*	Antangping, Mt. Miao'er Shan, NE. Guangxi, China	AB031490
C. (*A.*) *sauteri yunkaicus*	9, 10	Hongjunting, Mt. Miao'er Shan, NE. Guangxi, China	AB031490
C. (*A.*) *sauteri sauteri*	11*	Shinchu, NW. Taiwan	AB031491
C. (*A.*) *sauteri sauteri*	12	Nanshan, Nantou, C. Taiwan	AB031492
C. (*A.*) *kouichii*	13	Mt. Pia Oac, Cao Bang Prov., N. Vietnam	AB031493
C. (*A.*) *tonkinensis*	14*	Deo Tram Ton, Lao Cai Prov., N. Vietnam	AB031494
C. (*A.*) *tonkinensis*	15	Deo Tram Ton, Lao Cai Prov, N. Vietnam	AB031495
C. (*A.*) *tuxeni bousquetianus*	16	Haba Mts., NW. Yunnan, China	AB031496
C. (*A.*) *delavayi* ssp.	17	Xichang-Yanyuan, S. Sichuan, China	AB031497
C. (*A.*) *delavayi huangmaogeng*	18	Daliang Shan Mts., S. Sichuan, China	AB031498
C. (*A.*) *toulgoeti*	19*, 20	Mt. Miao'er Shan, N. Guangxi, China	AB031499
C. (*A.*) *cyanipennis* ssp.	21	Mt. Guangwu Shan, NE. Sichuan, China	AB031500
C. (*A.*) *laoshanicus liaorum*	22*	Mt. Miao'er Shan, NE. Guangxi, China	AB031501
C. (*A.*) *laoshanicus laoshanicus*	23*	Mt. Dayao Shan, E. Guangxi, China	AB031502
C. (*A.*) *arrowi arrogantior*	24*	Mt. Miao'er Shan, N. Guangxi, China	AB031503
C. (*A.*) *iris*	25	Daliang Shan Mts., S. Sichuan, China	AB031504
C. (*A.*) *clermontianus*	26*	Mt. Tam Dao, Vinh Phu Prov, N. Vietnam	AB031505
C. (*A.*) sp.	27	Maolan, Libo Xian, SE. Guizhou, China	AB031506
C. (*Limnocarabus*) *clathratus**		W. Niedersachsen, N. Germany	AB031507
C. (*L.*) *maacki aquatilis***		Nakasato, Aomori, N. Japan	D50358

* From IMURA *et al.* (1998); ** from SU *et al.* (1996).

vergence is not necessarily recent. Such a "silent morphological evolution" can be recognized in other carabids such as *Damaster blaptoides*, *Phricocarabus glabratus*, *Tomocarabus* spp., etc. (SU *et al.*, 1999).

As noted above, *C.* (*A.*) *hupeensis* split from one of the *C.* (*A.*) *sauteri* stems including *C.* (*A.*) *s. dayaoshanicus* and *C.* (*A.*) *s.* ssp. This suggests that *C.* (*A.*) *hupeensis* emerged with a considerable morphological change from *C.* (*A.*) *sauteri* whose morphology has remained almost unchanged for a long time. The speciation of this type resembles the branching of *C.* (*Euleptocarabus*) *porrecticollis* from the *C.* (*Limnocarabus*) *clathratus* stem (IMURA *et al.*, 1998; KIM, SU *et al.*, 1999; SU *et al.*, 1999). The difference in morphology between *C.* (*A.*) *cyanipennis* and *C.* (*A.*) *laoshanicus*, and between *C.* (*A.*) *arrowi* and *C.* (*A.*) *iris* are considerable, and yet their diversification occurred recently. Thus, evolution of *Apotomopterus* has been brought about by having a silent phase and a phase accompanied by a considerable morphological change, as has been widely recognized in the other carabid groups (SU *et al.*, 1999)

Acknowledgements

We are grateful to the following colleagues who kindly supplied with valuable specimens for the present study: Prof. P. CAVAZZUTI (Pagno, Italy), Dr. S. MURZIN (Moskow), Dr. Shûhei NOMURA (National Science Museum, Tokyo), Mr. A. SHAMAEV (Moskow), Mr. J. TURNA (Czech) and Dr. H.-Z. ZHOU (Academia Sinica, Beijing). This study is supported in part by the Grant-in-aid No. 09041167 for Overseas Research of the International Scientific Research Program from the Ministry of Education, Science, Sports and Culture, Japan, to the field work in Vietnam by Dr. Shûhei NOMURA. Thanks are also due to Hideko TANAKA for skillful technical assistance.

要　約

金　衝坤・蘇　智慧・井村有希・大澤省三：ミトコンドリアND5遺伝子によるトゲオサムシ亜属(*Apotomopterus*)の系統解析．—— *Apotomopterus*は，雄の交尾器内袋基部に基棘と呼ばれる硬化片を持つトゲオサムシ群の唯一の構成員で，中国南東部を中心に分布し，100種近くを含む大亜属である．本研究では，IMURAら(1998)の報告に加え，中国とその周辺地域からえられたトゲオサムシ亜属19分類単位（27個体）のミトコンドリアND5遺伝子の塩基配列から系統関係を検討した結果，3系統の存在が認められた．これらの3系統は，オサムシの一斉放散（約5~4千万年前）直後にほぼ同時に分岐し，さらに各系統の中で2~3回にわたって分岐が起きたと推定された．*Carabus* (*Apotomopterus*) *sauteri*は，中国南東部と台湾にいくつかの亜種を産するが，形態的にはたがいによく似ているため，その分化は比較的最近に起ったものと想像されがちである．しかし，mtDNAの結果では*sauteri*は3つの系統に分かれ，それぞれ2200万年前の古い時代に分岐したことが示唆された．また，*C.* (*A.*) sp.（ブロイニングトゲオサムシに近縁な未記載種）と*C.* (*A.*) *clermontianus*も基本形態はたがいによく似ているが，mtDNAから両者は非常に古い時代に分化していることが示された．一方，*C.* (*A.*) *sauteri*の一つの枝から*C.* (*A.*)

*hupeensis*が分岐しているが，この事実は，長いあいだ形態変化がほとんどなかった*sauteri*から，形態的に異なる種が出現したことを示唆している．さらに，*C.* (*A.*) *cyanipennis*と *C.* (*A.*) *laoshanicus*, および*C.* (*A.*) *arrowi*と *C.* (*A.*) *iris*とのあいだでは，顕著な形態的差異にもかかわらず，分子系統樹からみるとそれぞれの種の分岐した時期は比較的新しいことが判明した．以上の結果から，トゲオサムシ亜属の進化には，形態が長いあいだほとんど変わらなかった時期と，短いあいだに変化した時期のあることが示唆された．

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Records of *Carabus japonicus chugokuensis* (Coleoptera, Carabidae) from Shiga Prefecture, Central Japan

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The present brief paper reports the first record of *Carabus japonicus chugokuensis* from Shiga Prefecture, Central Japan, which marks the eastern limit of the distributional range of this widespread subspecies.

I wish to express my gratitude to Mr. S. TAKEDA, Mr. K. FUJIMOTO, Ms. Y. SUGINO, Mr. M. ENDO, Mr. M. NAKAGAWA and Mr. Y. SHIBAEI for their kind support in various ways and gift or loan of the materials. The specimens examined are preserved in the Lake Biwa Museum.

Carabus japonicus chugokuensis (NAKANE)

Specimens examined. 1♀, Oisugi, Kutsuki-mura, 14–VII–1996, K. FUJIMOTO leg.; 1♀, ditto, 25–VI–1997, S. TAKEDA leg.; 1♀, ditto, 23–IX–1997, K. FUJIMOTO & Y. SUGINO leg.; 7♂♂, 3♀♀, Onyûdani, Kutsuki-mura, 29–VI–1997, S. TAKEDA & Y. SUGINO leg.; 1♀, ditto, 21–IX–1997, M. ENDO & Y. SUGINO leg.; 1♂, 1♀, ditto, 23–IX–1997, K. FUJIMOTO & Y. SUGINO leg.; 2♂♂, ditto, 26–IX–1997, M. ENDO & Y. SUGINO leg.; 2♂♂, 1♀, ditto, 7–VI–1998, M. NAKAGAWA leg.; 3♂♂, 2♀♀, Nakamaki, Kutsuki-mura, 25–VI–1997, S. TAKEDA leg.; 1♂, ditto, 1–X–1997, M. NAKAGAWA leg.; 7♂♂, 6♀♀, ditto, 6–VII–1997, S. TAKEDA leg.; 5♂♂, 4♀♀, ditto, 15–V–1998, S. TAKEDA leg.; 10♂♂, 5♀♀, ditto, 23–V–1998, S. TAKEDA leg.; 2♂♂, Utodani, Kutsuki-mura, 6–IX–1997, M. ENDO leg.; 2♀♀, ditto, 14–VII–1997, S. TAKEDA leg.; 2♂♂, ditto, 6–IX–1997, M. ENDO leg.; 1♀, Nôge, Kutsuki-mura, 26–IX–1997, M. ENDO & Y. SUGINO leg.; 2♂♂, ditto, 6–IX–1997, M. ENDO leg.; 1♂, 2♀♀, ditto, 14–VII–1997, S. TAKEDA leg.; 1♀, Hera, Kutsuki-mura, 1–X–1997, M. NAKAGAWA leg.; 2♀♀, ditto, 25–VI–1997, S. TAKEDA leg.; 1♀, Aso, Kutsuki-mura, 31–VIII–1997, M. ENDO leg.; 1♂, 1♀, ditto, K. YAHIRO & Y. SUGINO leg.; 1♂, ditto, 26–IX–1997, M. ENDO & Y. SUGINO leg.; 1♀, 23–IX–1997, K. FUJIMOTO & Y. SUGINO leg.; 1♀, Jishihara, Kutsuki-mura, 26–IX–1997, M. ENDO & Y. SUGINO leg.; 1♀, Kogawa, Kutsuki-mura, 25–IX–1997, M. NAKAGAWA leg.

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Refer to page 418 of the following paper.

YAHIRO, K., K. FUJIMOTO & Y. SUGINO, 1997. New records of *Calosoma maximowiczi* and *Hemicarabus tuberculosus* (Coleoptera, Carabidae) from Shiga Prefecture, Central Japan. *Elytra, Tokyo*, **25**: 417–418.

Elytra, *Tokyo*, **27** (2): 651–654, November 13, 1999

A New Species of *Apotomopterus* and a New Subspecies of *Cychrus* (Coleoptera, Carabidae) from China

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Abstract Two new taxa of the genera *Carabus* (s. lat.) and *Cychrus* are described from China under the names of *Carabus* (*Apotomopterus*) *maolanensis* sp. nov. from southeastern Guizhou and *Cychrus bispinosus shennongding* subsp. nov. from western Hubei.

Recently, we had an opportunity to examine a short series of carabine specimens collected by the staff of the Chinese Academy of Sciences from such areas as Beijing, Hubei and Guizhou. Of some interesting forms included in the same series, a new species belonging to the subgenus *Apotomopterus* of the genus *Carabus* (s. lat.) and a new subspecies of *Cychrus bispinosus* will be described in the present paper.

The present study is a part of the collaborative research project made between JT Biohistory Research Hall (BRH) (Takatsuki, Osaka) and the Institute of Zoology, Chinese Academy of Sciences (CAS) (Beijing), and is supported in part by two scientific programs No. KZ952–S1–106 and No. STZ97–1–03 of CAS and a major program No. 39893360 of the National Natural Science Foundation of China (NSFC).

1. ***Carabus* (*Apotomopterus*) *maolanensis*** IMURA, ZHOU et SU, sp. nov.

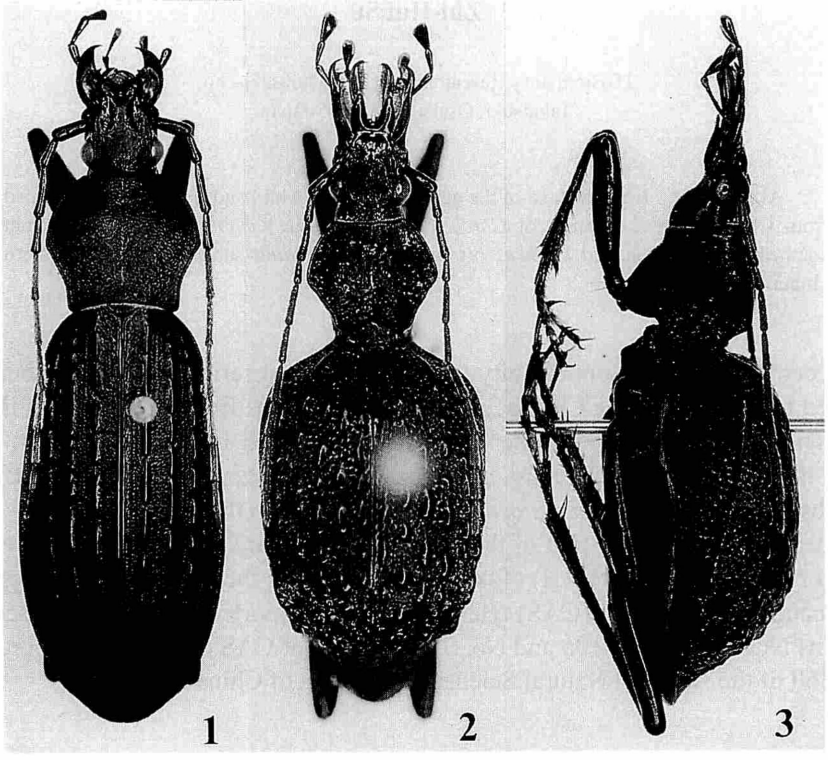
(Figs. 1, 5)

Length: 40.9 mm (including mandibles).

Closely similar to *C.* (*A.*) *breuningianus* LE MOULT, from which the present new species differs, in external morphology, only in a little weaker rugae on vertex, a little shorter hind angles of pronotum, more weakly wrinkled pronotal disc, shallower basal foveae of pronotum, and a little less elongate elytra with more prominent secondary and tertiary intervals, but evidently different in configuration of male genitalia as described below.

Aedeagus a little shorter, above all both in median and apical portions; apical lobe much shorter and robuster, not sinuate towards apex in lateral view, and hardly concave right laterad. Spinula larger and thicker, with the outer margin not emarginate but roundly protruded.

Holotype: ♂, Yaogu [尧古] in the Maolan [茂兰] Nature Reserve of Libo [荔波] Xian, southeastern Guizhou, South China, 15–VIII–1997, in coll. Institute of Zoology,



Figs. 1–3. —— 1, *Carabus* (*Apotomopterus*) *maolanensis* sp. nov., from Maolan in SE. Guizhou (holotype, ♂); 2–3, *Cychrus bispinosus shennongding* subsp. nov., from near the peak Shennongding on the Dashennongjia Massif in W. Hubei (holotype, ♀; 2, dorsal view; 3, left lateral view).

Chinese Academy of Sciences, Beijing.

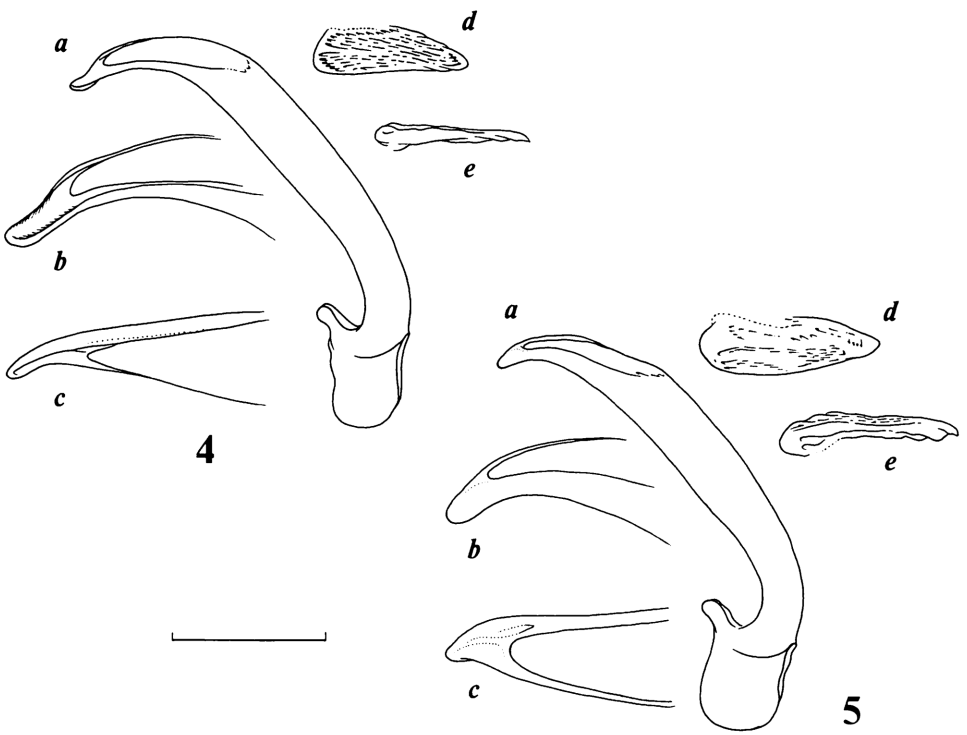
Notes. Although a little different in details, the single known specimen of *Apotomopterus* from Maolan is almost identical with *C.* (*A.*) *breuningianus* in external morphology. It is, however, obviously different from the latter in configuration of the male genitalia, as shown in Figs. 4–5 which are drawn under the same scale. Noticeable is that the spinula of *maolanensis* nov., the aedeagus of which is smaller of the two, appear larger than that of *breuningianus*. The much robuster and differently shaped apical lobe of aedeagus is also unique and diagnostic. These peculiarities are evidently of specific importance, not subspecific, even if the external features of the beetles are closely similar to each other.

2. ***Cychrus bispinosus shennongding*** IMURA, ZHOU et SU, subsp. nov.

(Figs. 2–3)

Length: 17.0 mm (including mandibles).

Most closely allied to subsp. *dabashanensis* IMURA of the Daba Shan Mts. in



Figs. 4–5. Male genital organ of *Carabus* (*Apotomopterus*) spp. —— 4, *C.* (*A.*) *breuningianus* from Mt. Daming Shan, Guangxi; 5, *C.* (*A.*) *maolanensis* nov. from Maolan, Guizhou; a, aedeagus in right lateral view; b, apical part of aedeagus in right lateral view; c, ditto in dorsal view; d, spinula in dorsal view; e, ditto in lateral view. Scale: 4 mm for a, 2 mm for b–e.

northeastern Sichuan, but differs from that form in the following respects: 1) a little smaller in size; 2) antennae shorter, barely extending to the middle of elytra in female; 3) pronotum wider than long, ca. 1.1 times as wide as long, with the widest parts of lateral sides angulate and far more strongly projected laterad, hind angles less strongly protruded dorsad, and the disc more clearly punctate; 4) elytra with the shoulders more effaced and the secondary callosities more strongly prominent.

Type series. Holotype: ♀, alpine meadow near the peak Shennongding [神农顶], 2,890 m alt., on the Dashennongjia [大神农架] Massif, in Shennongjia Linqu, western Hubei, Central China, 26–VII~9–VIII–1998, H.-Z. ZHOU leg., in coll. Institute of Zoology, Chinese Academy of Sciences, Beijing. Paratype: 1 ♀, same data as for the holotype.

要　　約

井村有希・周　红章・蘇　智慧：中国産トゲオサムシの1新種とセダカオサムシの1新亜種．—— 中国貴州省南東部荔波县の茂兰自然保護区から，ブロイニングトゲオサムシに近縁だが♂交尾器形態のいちじるしく異なる新種，マオラントゲオサムシ *Carabus* (*Apotomopterus*) *maolanensis* nov.を記載した．また，湖北省神农架の神农顶から，トゲムネセダカオサムシの新亜種，*Cychrus bispinosus shennongding* nov.を記載した．

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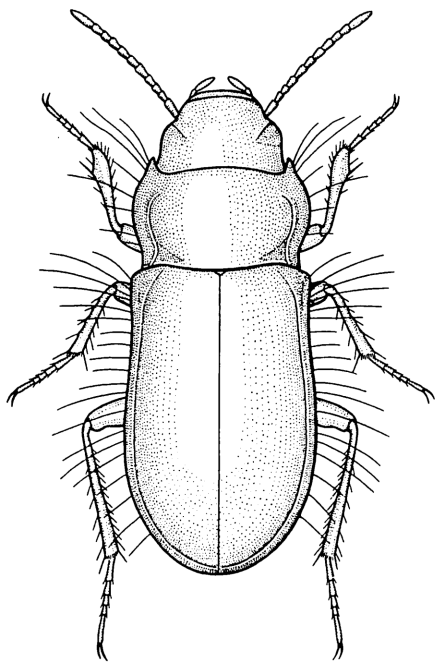
ISSN 0387—5733

ELYTRA

Volume 27 1999



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THE JAPANESE SOCIETY OF COLEOPTEROLOGY
TOKYO

Dates of Issue:

Vol. 27, No. 1	May 15, 1999
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1. 和文原稿は20×20字づめA4判横書き原稿用紙，または800字づめのワープロを用いる．句読点には．，：；・を用いる．欧文原稿の用語には英語，独語，仏語のいずれかを使用してもよい．欧文原稿の用紙には国際判またはA4判を用い，左側に3cm以上の余白をあけ，タイプライターなどで清書する．行間はダブル・スペースとし，表題や見出しを含めていかなる場合も大文字だけでは打たない．なお，原稿の第1ページには，少なくとも上部に1/4以上の余白をあける．

2. 報文原稿は，表題，著者名，所属機関とその所在地，または住所（和文原稿の場合はこれらの欧文表記を加える），刷り上がり15行以内の英文の著者抄録（Abstract），本文，和文要約，文献の順に配列する．動・植物の属およびそれ以下の学名には下線をひく．また，人名には二重の下線をひく．文献は著者名のアルファベット順に並べて下記の形式で記す．

FLEUTIAUX, E., 1942. Entomological results from the Swedish Expedition to Burma and British India. Coleoptera: Elateridae, recueillis par René MALAISE. *Ark. Zool.*, **33A** (18): 1–24.

黒沢良彦（KUROSAWA, Y.），1978. 伊豆諸島特産種ミクラミヤマクワガタの系統と分布．科博専報，(11)：141–153.

———— & H. KOBAYASHI, 1975. A new may-beetle of the genus *Fruhstorferia* KOLBE from Formosa. *Bull. natn. Sci. Mus., Tokyo*, (A), **1**: 213–215.

THOMSON, M. J., 1860. Essai d'une classification de la famille des Cérambycides et matériaux pour servir à une monographie de cette famille. XVI+396 pp., 3 pls. Soc. ent. France, Paris.

（雑誌の号数は括弧でくくって表示するが，巻が通しページである場合には号数を引用しない．）

3. 報文中の採集データはつぎのように略記されたい．

（例）3♂♂, 1♀, Zaô Mts., Miyagi Pref., 27–VII–1979, M. SATÔ leg.

4. 原稿には原稿用紙と同質の表紙をつけ，これに表題，ランニング・タイトル（簡略化した論文表題，欧文50字以内，和文20字以内），著者名，連絡先を記し，赤字で原稿枚数，図表の枚数，別刷部数（表紙つき，表紙なしの別を明記），その他連絡事項があれば記入する．

5. 図はすべて挿図［text-figure］として扱い，原色写真の場合などを除いて図版［plate］にはしない．線画は耐水性黒色インクで鮮明に描き，そのまま印刷できるようにする．印刷された図の拡大（縮小）率を示したい場合には，図中にスケールを入れる．原図には薄紙のカバーをかけ，これに著者名，図の番号，上になる方向を示す．もし，原図版上に取扱い指定文字を入れる場合にはかならず青鉛筆を用いる．原図の返送が必要な場合はカバーにその旨を記入する．原図の大きさは，台紙を含めてB4判（36×25.5cm）以内とされたい．

6. 図の説明および表はそれぞれ別紙に書き原稿末につける．原稿本文の左余白に図および表のだいたいの挿入位置を鉛筆で示す．

7. 原稿の送付先は下記宛とする．

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上野俊一（編集委員長）　または　新里達也（編集幹事）